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Estonian national energy and climate plan (NECP 2030)

Estonia's Communication to the European Commission under Article 9(1) of Regulation (EU) 2018/1999.

Tallinn 2018

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SECTION A. NATIONAL PLAN

1. OVERVIEW AND PROCESS FOR ESTABLISHING THE PLAN

1.1. Executive summary

i. Political, economic, environmental, and social context of the plan

The "Estonian national energy and climate plan" until 2030 (hereinafter *NECP 2030*) has been drawn up to perform the requirement laid down in Article 9(1) of Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action (hereinafter *Regulation (EU) 2018/1999*), in accordance with which each Member State must prepare and submit to the Commission a draft of the their national energy and climate plan.

Strategic planning organised by the State is subject to the basis described in the State Budget Act¹. According to the State Budget Act, there are two types of development documents in Estonia: general principles of policy and development plans. General principles of policy shall be approved by the decision of the Riigikogu and development plans that shall be approved by the Government of the Republic after discussions in the Riigikogu.

The proceedings concerning the three development documents of national importance dealing with Estonian climate and energy policy until 2030 ended in 2017:

- 1) The Government of the Republic approved the "Climate change adaptation plan until 2050"² (hereinafter *CCAP 2050*) on March 2017;
- 2) The Riigikogu approved the "General Principles of Climate Policy until 2050" (GPCP 2050) on April 5, 2017³ and
- 3) On 19 October 2017, the Government of the Republic approved the "Estonian National Energy Development Plan 2030"⁴ (hereinafter *NEDP 2030*+);

This document is compiled on the basis of the development documents listed above.

Long-term preparatory work preceded drafting of all of these plans, with the participation of experts from enterprises, research and development companies, local governments and their representative organisations. In addition, a strategic assessment of the environmental impact of these development documents was conducted. Events that were related to drafting the plan were mainly public, and all of the materials related to the drafting of the plan were published on a separate webpage ⁵.

ii. Strategy related to the five dimensions of the Energy Union.

iii. Overview table with key objectives, policies and measures of the plan.

1.2. Overview of current policy situation

i. Energy system of the Member States and EU and the policy context of the national plan.

¹ https://www.riigiteataja.ee/akt/107072017038?leiaKehtiv

 $^{^{2}\} https://www.envir.ee/sites/default/files/kliimamuutustega_kohanemise_arengukava_aastani_2030_1.pdf$

³ http://www.envir.ee/sites/default/files/362xiii_rk_o_04.2017-1.pdf

⁴ <u>https://www.mkm.ee/sites/default/files/enmak_2030.pdf</u>

⁵ <u>https://energiatalgud.ee</u>

ii. Current energy and climate policies and measures relating to the five dimensions of the Energy Union.

iii. Key issues of cross-border relevance

The key issues of cross-border relevance in Estonian energy management are as follows:

- joining the synchronous area of Continental Europe;
- ensuring sufficient power capacity in the region, integration of the services market of the electricity system;
- ensuring security of gas supply and further integration of the gas market;
- development of the loading or fuelling infrastructure of alternatively fuelled vehicles;
- reaching renewable energy targets in the most cost-effective manner.

iv. Administrative structure of implementing national energy and climate policies

1.3. Consultations and involvement of national and EU entities and their outcome

i. Involvement of the national parliament

The Ministry of Economic Affairs and Communications and the Ministry of the Environment presented the draft NECP 2030 and its compilation process in the Environment Committee of the *Riigikogu* on 8 October 2018 and Economic Affairs Committee of the *Riigikogu* on 13 November 2018.

ii. Involvement of local and regional authorities

Preparation of the draft ESDP 2030 began in October 2012. The large-scale involvement of local governments in the preparation of the Estonian energy policy began already during the preparation of the ESDP 2030. Information regarding the preparation of the ESDP 2030 and assessment of the environmental impact of ESDP 2030 was communicated to all Estonian local governments. Representatives of the local governments also participated in the conferences related to drawing up ESDP 2030. Similar involvement took place also during drawing up the GPCP 2050 and the "General Principles of Climate Policy until 2050".

The joint letter of June 2018 of the Ministry of Economic Affairs and Communications and the Ministry of the Environment informed the local governments that actively participated in drafting the ESDP 2030 of the preparation of the draft NECP 2030. The joint letter invited the

interested parties to announce their interest in participating in the process of drawing up the NECP 2030 via the involvement in NECP 2030 web form⁶.

Representatives of the local governments were invited and also participated in the event presenting the draft NECP 2030 on 9 October 2018. The representative organisation of Estonian local governments, the Association of Estonian Cities and Rural Municipalities, is also a member of the Energy Council of the Ministry of Economic Affairs and Communications.

Publication of the working document of the draft NECP 2030 on the cloud page of the Ministry of Economic Affairs and Communications⁷ preceded the event presenting the NECP 2030.

Public consultation of the draft NECP 2030

Although public consultations regarding the national energy and climate plan drawn up for the period 2021-2030 are not required by Article 10 of Regulation (EU) 2018/1999, the draft NECP 2030 was published in the Estonian Draft Legislation Information System ⁸ on 10 December 2018 with a call to submit general comments on the draft until 20 December 2018 and detailed comments until 6 February 2019. The Ministry of Economic Affairs and Communications also submitted the notification regarding public consultation to all those who had announced their desire to receive notifications related to the proceeding around the NECP 2030 in the web form for involvement in the NECP 2030.

As of 21 December 2018, three companies and four non-governmental organisations (the Estonian Fund for Nature, the Estonian Green Movement, the Estonian Environmental Law Center and the Estonian Energy Industries Union).

The NECP 2030 document that will be submitted to the European Commission by the end of 2019 will be coordinated with other ministries via the Estonian Draft Legislation Information System, and during this coordination other interested parties may express their opinion about the draft legislation.

Executive summary of the initial positions submitted regarding the draft NECP 2030

Due to the relatively small number of comments on the draft, an overview of the positions is prepared by the submitters.

The comments submitted by the Estonian Fund for Nature, the Estonian Green Movement and the Estonian Environmental Law Centre stated the following:

- The opportunities for contributing to preparing the draft NECP 2030 during the second half of 2018 have been scarce and delayed. The public and stakeholders have not been given an adequate opportunity to contribute before submitting the draft NECP 2030 to the European Commission;
- Drafting of the NECP should not only follow existing policy documents such as the "General Principles of Climate Policy until 2050" or the "Estonian National Energy Development Plan 2030". Objectives set to 2030 should be more ambitious than

⁶ <u>http://bit.ly/REKK_2030_huviline</u>. As of 27 December 2018, there were 130 interested parties who had registered to the process of drawing up NECP 2030 via the web form.

⁷ <u>https://pilv.mkm.ee/s/WKCg4wfGoKZnzDR</u>

⁸ <u>https://eelnoud.valitsus.ee/main/mount/docList/80cc82db-711d-481b-8b4f-82af433e3ee9</u>

existing ones, and the NECP document should chart a clear course towards ending the use of oil shale and foresee measures for its implementation;

- By 2050, Estonia should reach the zero carbon emissions rather than the objective of reducing GHG by 80%. The NECP 2030 document should describe year-by-year the areas and the quantity of emissions to be reduced and the specific measures that will be applied to achieve that objective and the amount of financing foreseen for the implementation of these measures;
- the carbon capture capabilities of peatlands must be preserved;
- Subsidies for oil shale energy production (also shale oil) and peat must be terminated, for example via low resources and fees for mining usufruct right, also the chapter 4.6.iv about subsidies to the fossil fuels should be more thorough;
- oil shale energy research should be denied research and development funding;
- in the area of renewable energy, the production of the EEG electricity should be increased more forcefully, and Estonia should use 100% renewable sources for electricity production by 2030; the draft document should clearly indicate the amount of renewable energy capacity to be added annually;
- in the use of biomass in energy production, the maximum volume of timber extraction that may be permitted in order to preserve the sequestration capacity of Estonian forests, i.e. 8-8.4 million cubic meters per year, should be observed. Energy from biomass should primarily be produced in local high efficiency cogeneration plants;
- sustainability criteria should be set for woody biomass utilisation for electricity and heat production, and essential stakeholders should be involved in their development;
- in the area of wind power, the NECP should establish measures that would make it possible to find optimum locations for marine wind farms from both an environmental and a technological point of view, and hence eliminate the obstacles to the construction of wind parks that have now arisen. More resources should be devoted to the investigation of environmental status (bird and bat migration, benthos, the cumulative impact of wind energy throughout the Baltic Sea) and the creation of marine protection areas, a topic that has stood idle for years, should be decided as quickly as possible;
- in the area of transport fuel, the development of electromobility should be the main focus, since the infrastructure built for the use of biofuels will probably be useless after 2030;
- Insufficient attention is paid to the participation of consumers in energy production in the draft NECP 2030.

The Estonian Energy Industries Union (ETL) has highlighted the following in their initial comments:

- The ETL supports the activities of the ministry in drawing up the draft;
- the draft should specify the benchmarks for the share of renewable electricity, information on the renewable energy utilisation objectives in the transport sector, the power capacity of combined power and heat plants (Table 7 and Table 8), and information concerning the objectives of diversification of gas supply that take into account the production of biogas/biomethane in Estonia;
- chapter 2.3.iv should reflect the barometers of the sub-target of the security of supply of the "Estonian National Energy Development Plan 2030";

- chapter 2.4.2 should consider the priority of domestic investment to create the preconditions for new wind farms in Western Estonia and islands or outside Estonia to become connected with the network;
- in the analysis of economic competitiveness in chapter 2.5.iii, the ratio of energy intensity should be used instead of primary energy intensity;
- in chapter 3.1.1.i, the waste sector measures should, within the framework of reuse, create a preference for biomethane production from biodegradable waste;
- there is no market failure preventing GHG reduction in the heating sector, it is not expedient to finance measures targeting the heating sector;
- chapter 3.1.2.iv should specify the information regarding the share of renewable electricity;
- chapter 3.1.2.iv should also include information on the forecast regarding the increase in the share of renewable electricity;
- chapter 3.1.1.i reflects the steps taken to increase the efficiency of oil shale utilisation in the past. It should be considered whether it would be expedient to present this information and/or to clarify it. There is no State aid given for making the investments listed in measure 1. The chapter should also describe the strategic decision of the ESDP to gradually replace electricity production from oil shale with production of liquid fuel from oil shale and use only the by-products of liquid fuel production and residual heat for producing electricity.

The remarks made by Elektrilevi OÜ, Estonia's largest distribution network operator, concerned the principles of price regulation of the electricity distribution systems and investment principles for the modernisation of the distribution networks, which the NECP 2030 could reflect. Elektrilevi OÜ also considers the more ambitious enhancement of electromobility and national measures to be important.

The oil shale processing industry company Viru Keemia Grupp AS emphasised the need to encourage more efficient use of oil shale and reduce environmental impact, for which it is not imperative to increase pollution taxes.

Considering the initial views submitted regarding the draft NECP 2030

Comments submitted regarding the December 2018 draft NECP 2030 have not yet been considered in the draft. A review of the NECP 2030 text based on these comments is planned for 2019.

iii. Consultations with stakeholders, including social partners, and engagement with civil society and the general public.

Other stakeholders have been involved in drawing up the ESDP 2030, CCAP 2030 and NECP 2030 in exactly the same way as local governments, whose involvement is described in chapter 1.3.ii.

More important representatives of stakeholders are members of the Energy Council of the Ministry of Economic Affairs and Communications. The Energy Council of the Ministry of Economic Affairs and Communications can be seen as the multilevel climate and energy dialogue, the establishment of which is mandatory for the Member States based on Article 11 of Regulation (EU) 2018/1999.

iv. Consultations of other Member States

The draft NECP 2030 has been presented to the representatives of other Member States during the following events or meetings:

- Nordic-Baltic Energy conference 29.09.2018;
- Meeting of the Committee of Senior Officials of the Baltic Council of Ministers on 30 October 2018.

Consultations with other Member States are also continuing in 2019.

v. Iterative process with the European Commission

1.4. Regional cooperation in preparing the plan

- i. Elements subject to joint or coordinated planning with other Member States.
- ii. Explanation of how regional cooperation is considered in the plan.

The forum for regional cooperation is provided by the Baltic Council of Ministers, in the framework of which the Committee of Senior Officials was established. The Committee convenes regularly according to the work program of the Presidency (the presidency rotates on an annual basis). Joint activities for the development of the regional electricity and gas market and enhancement of joint infrastructure projects are discussed at the Energy Council. The Committee guides and monitors the work of the regional gas market coordination group, whose aim is to create a uniformly operating regional gas market that covers the Baltic states and Finland. The basis of the work is the action plan for the development of the single gas market.

Estonia participates actively in the Baltic Energy Market Interconnection Plan (BEMIP) working group, which discusses options for regional cooperation in the area of electricity, gas, renewable energy and energy efficiency. Implementation of the action plan for synchronisation of the electricity systems of the Baltic States is monitored and coordinated by a high-level working group on synchronisation at the BEMIP, which includes members from the Baltic States, Poland and the European Commission.

2. NATIONAL OBJECTIVES AND TARGETS

- 2.1. Dimension 'Decarbonisation'
- 2.1.1. GHG emissions and removals⁹
- i. The elements set out in point (a)(1) of Article 4.

The contribution of the European Union to the Paris Agreement concluded in 2015 is binding, and it covers all economic sectors. The objective is to reduce greenhouse gas (GHG) emissions in the EU by at least 40% of the 1990 level by 2030. To achieve this objective, all sectors belonging to the EU ETS must reduce their emissions by 43% of the 2005 level by

⁹ Consistency to be ensured with long-term strategies pursuant to Article 15.

2030. Emissions from sectors that are not covered by the EU ETS, i.e. transport, agriculture, waste management and industrial processes, and small-scale energy production where energy is produced by equipment with less than 20 MW of rated output, must be reduced by 30% of the 2005 level by 2030. This objective also concerns land-use, land-use change and the forestry (so-called LULUCF) sector, which should contribute to the achievement of the EU GHG reduction objective. At the beginning of 2018, EU Member States reached an agreement on the details of how to reach the objective of the Paris agreement, namely EU internal legislation on the reduction targets in sectors not covered by the EU ETS and details of how land-use, land-use change and the forestry sector can be integrated with the EU climate and energy framework.

Estonia's binding GHG reduction/limitation objectives come from the Effort Sharing Regulation and LULUCF regulations (see Table 1). The Effort Sharing Regulation establishes the binding emissions reduction objectives for the EU Member States over the period 2021-2030 in the sectors beyond the scope of the emissions trading scheme. The objective for Estonia is to reduce greenhouse gas (GHG) emissions in the above-indicated sectors by 13% of 2005 levels by 2030.

In accordance with the calculation principles applied in the LULUCF regulation, the emissions should not exceed the volumes of captured carbon (the so-called *no-debit* rule).

	TARGET	NOTES		
Binding national target for reduction of greenhouse gases from the 2005 level by 2030 under the Effort Sharing Regulation	-13%	Source: Regulation (EU) 2018/842 of the European Parliament and of the Council ¹⁰		
Estonia's binding national target under the LULUCF Regulation	Ensure that the emissions of the LULUCF sector will be compensated by carbon capture by the same sector and the total emissions of the LULUCF sector and carbon capture are at least in balance	Source: Regulation (EU) 2018/841 of the European Parliament and of the Council ¹¹		

Table 1. National targets for reduction of GHG emissions for 2030

¹⁰ https://eur-lex.europa.eu/legal-content/ET/TXT/PDF/?uri=CELEX:32018R0842&from=EN

¹¹ https://eur-lex.europa.eu/legal-content/ET/TXT/PDF/?uri=CELEX:32018R0841&from=EN

ii. Where applicable, other national objectives and targets consistent with the Paris Agreement and the existing long-term strategies. Where applicable for the contribution to the overall Union commitment of reducing the GHG emissions, other objectives and targets, including sector targets and adaptation goals, if available

The long-term objective for Estonia is to transition to a low carbon emission economy, which would mean iterative and purposeful reorganisation of the economy and energy system to make them more resource efficient, productive and greener. This would entail changes in energy production, transport, forestry and agriculture, but also in people's daily habits. The target for Estonia by 2050 is to reduce GHG emission by approximately 80% compared to 1990 levels (see Table 2).

	TARGET	NOTES	
Estonian target for reduction of greenhouse gases by 2050 compared to 1990 emission level.	-80%	Source: General Principles of Climate Policy to 2050 ¹²	
Objective of the climate change adaptation plan	To increase the readiness and capability to adapt to the impact of climate change on the national, regional and local levels in Estonia.	Source: Climate change adaptation plan to 2030 ¹³	

Table 2. National long-term targets for reduction of GHG emissions

The strategic objective of the climate change adaptation plan is to increase the national, regional and local readiness and capability to adapt to the impact of climate change in Estonia. Implementation of the development plan will improve Estonia's readiness and capability to adapt to the impact of climate change on the national, regional and local levels, and identify the areas that are most vulnerable to climate change. This development plan will plan and control the field of adaptation to the impact of the climate change as a whole via a single strategy document, and the approach to climate change adaptation will be assembled and harmonised. This will ensure improved cohesion between different sectors of climate change adaptation. The development plan sets eight sub-objectives on the basis of the following eight priority areas:

- 1. health and rescue capability;
- 2. planning and land-use, including coastal areas, other areas with flood risk/soil risk, land improvement, irrigation, drainage, urban planning;

¹² http://www.envir.ee/sites/default/files/362xiii_rk_o_04.2017-1.pdf

¹³ https://www.envir.ee/et/eesmargid-tegevused/kliima/kliimamuutustega-kohanemise-arengukava

- 3. natural environment, including biodiversity, terrestrial ecosystems, freshwater ecosystems and environment, the Baltic Sea and marine environment, ecosystem services;
- 4. bioeconomy, including agriculture, forestry, fishing, game and hunting, tourism, peat extraction;
- 5. economy, including, insurance, banking and other financial institutions, employment, business and entrepreneurship, industry;
- 6. society, awareness and collaboration, including education, awareness and scientific research, communication, society, international relationships and collaboration;
- 7. infrastructure and buildings, including technical support systems, transport; and
- 8. energy and energy supply, including energy independence, security and safety of supply, energy resources, application of energy efficiency, heating, electricity production.

2.1.2. Renewables

i. The elements set out in point (a)(2) of Article 4

If flexible collaboration mechanisms with other EU Member States are launched successfully, it could be possible to increase the share of electricity from renewable energy sources in Estonia's final electricity consumption to 50%. Figure 1

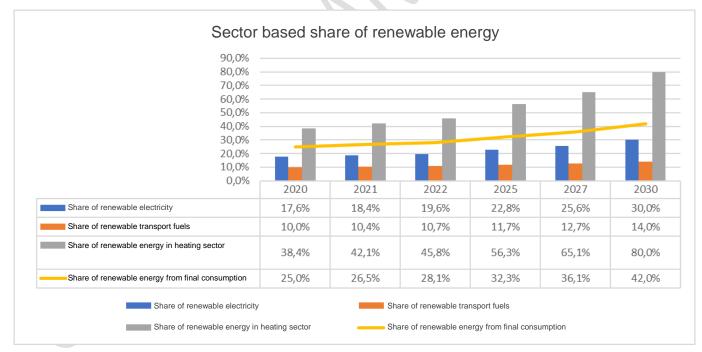


Figure 1. Share of energy from renewable sources in final consumption of energy in general and by sector. Year 2020 numbers are based on the document "National Renewable Energy Action Plan to 2020". Estimated trajectories for the sectoral share of renewable energy in final energy consumption from 2021 to 2030 in the electricity, heating and cooling, and transport sector.

Considering the availability of 2nd generation liquid biofuels in the European and world context and the accompanying price pressure, it is socio-economically preferable to cover the requirement for the use of 2nd generation fuels with the domestically produced fuel. Considering the year 2030 target, Estonia's target is to cover the need for 2nd generation

biofuels with biomethane. There is potential for the use of gaseous fuels in Estonia, and biomethane has an important role in this. For that purpose, it is necessary to produce up to 40 Mm³ of biomethane (375 GWh) by 2030. Calculation of the 2020 level takes into consideration the so-called multipliers in the figure below, but the level for 2030 is set for actual volumes or it is not calculated (i.e. does not contain multipliers).

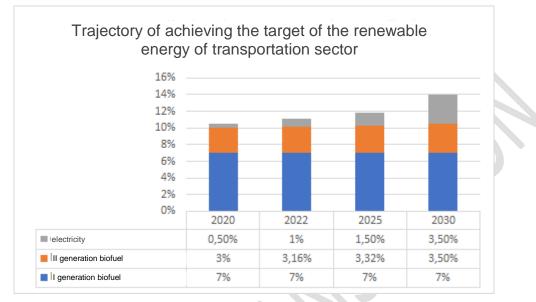


Figure 2. Contribution of different type energy and biofuels for meeting the renewables target in the transport sector.

ii. Estimated trajectories by renewable energy technology that the Member State projects to use to achieve the overall and sectoral trajectories for renewable energy from 2021 to 2030, including expected total gross final energy consumption per technology and sector in Mtoe and total planned installed capacity (divided by new capacity and repowering) per technology and sector in MW.

Targets for renewables agreed at European Union level and at national level will be achieved in the most cost-efficient way, where the main keywords are high efficiency and market basis. We increasingly see the role of renewable energy solutions in the Estonian energy portfolio that make maximum use of the opportunities provided by Estonia's geographical and natural conditions. We see a correlation between the reduction of the electrical energy produced from oil shale and increasing production of electricity from wind energy. The maximum valorisation of biomass, where the use of the raw material takes into account environmental sustainability and biological diversity conservation aspects, also plays an important role. We see great potential for synergy between sectors, e.g. between energy efficiency and renewable energy solutions as a means of achieving the targets. Specific trajectories for renewable energy technologies will be set during 2019.

 iii. If existing, the estimated trajectories on bioenergy demand, disaggregated between heat, electricity and transport, and on biomass supply, by feedstocks and origin (distinguishing between domestic production and imports). For forest biomass, an assessment of its source and impact on the LULUCF sink.

This chapter will be prepared in 2019, if possible.

iv. If available, other national trajectories and objectives including long-term and sectoral ones (such as share of electricity produced from biomass without the utilisation of heat, share of renewable energy in district heating, renewable energy use in buildings, energy recovered from the sludge acquired through the treatment of wastewater;

2.2. Dimension 'Energy efficiency'

i. The elements set out in point (b) of Article 4.

Under point (b) of Article 4 of Regulation (EU) 2018/1999, the NECP 2030 document should indicate the following:

- overall energy efficiency target
- the cumulative amount of end-use energy savings to be achieved over the period 2021-2030;
- the indicative milestones for the renovation of buildings, both public and private, by 2030, 2040 and 2050;
- the total floor area of public bodies' buildings to be renovated over the period 2021-2030.

Overall energy efficiency target

Each Member state must give their fair contribution to achieving the general energy efficiency target laid down in the EU Energy Efficiency Directive, under which EU primary energy consumption must not exceed 1273 Mtoe in 2030 and/or EU final energy consumption must not exceed 956 Mtoe. For that purpose, each Member State must indicate their indicative contribution for achieving the EU energy efficiency target (hereinafter *overall energy efficiency target*).

The NEDP 2030 describes primary energy consumption, final energy consumption and energy intensity as the expected results of the application of the measures of the development plan in 2030 (see NEDP 2030 tables 1.2 and 1.3). Under the NEDP 2030, expected primary energy consumption in 2030 will be 10% less than in 2012^{14} , final energy consumption will be 32 TWh (115 PJ) and the energy intensity of the Estonian economy will be 2 MWh/1000 $\epsilon_{GDP2012}$.

The conclusions of the European Council that took place in October 2014 on the EU 2030 climate and energy policy framework¹⁵ regarding energy efficiency were based on the

¹⁵ European Council ((23 and 24 October 2014) - Conclusions, http://data.consilium.europa.eu/doc/document/ST-169-2014-INIT/et/pdf

¹⁴ According to the data of EUROSTAT, Estonian gross inland energy consumption was 256 PJ in 2012, i.e. according to ESDP 2030, the primary energy consumption in Estonia may be up to 230 PJ.

European Commission Communication¹⁶ that described different Europe 2030 primary energy consumption levels and the possible impacts of achieving these levels. Based on the background of the formation of the EU energy efficiency target, it is most relevant to focus on the consumption of primary energy as a whole and take the consumption of primary energy in 2030 as the basis for the overall energy efficiency target. Other possible grounds for setting an overall energy efficiency target are final energy consumption, energy savings in primary energy consumption or final energy consumption in 2030 and energy intensity.

According to the EU Regulation on Governance of the Energy Union and Climate Action, the Member States must take into consideration the measures of the EU Energy Efficiency Directive, other measures for achieving energy efficiency on the Member State and EU level in their overall energy efficiency target, and may also take into account other circumstances that impact the consumption of primary energy and final energy consumption in the Member State. These other circumstances may be, for example:

- cost-effective energy savings potential in the future;
- changes in gross domestic product;
- changes in energy imports and exports;
- changes in the national energy balance, development of carbon storage options;
- previous efforts to achieve energy efficiency.

If the country considers other circumstances in their energy efficiency, these must be explained in this document. An overview of consideration of the above-listed aspects in setting the overall energy efficiency target is provided in the annex to this document (see Annex V).

The cumulative amount of end-use energy savings to be achieved over the period 2021-2030

Article 7 of the Energy Efficiency Directive obliges the Member States to achieve energy savings in final consumption. Average final energy consumption forms the basis for determining the required savings. Over the period 2021-2030, energy savings that form 0.8% of an average final energy consumption for 2016-2018 must be achieved every year. The achieved energy saving must be cumulative, i.e. the volume of the saving achieved during previous years must be stable during the whole period.

Calculation of the required cumulative energy saving is provided in the table below (see Table 3).

Indicator	Value	Notes
Final energy consumption in 2016, TJ	117,999	Data source: Eurostat table nrg100
Final energy consumption in 2017, TJ		
Final energy consumption in 2018, TJ		
Average final energy consumption, TJ	120,000 ¹⁷	Average final energy consumption over the period 2016-2018
Required annual energy saving, TJ	960	0.8% of average final energy

Table 3. Required energy-savings between 2021-2030

¹⁶ COM(2014) 520 final, "Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy", <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1528977372755&uri=CELEX:52014DC0520</u>

¹⁷ Must be recalculated after publishing the statistical data of 2017 and 2018 in EUROSTAT. Initial information from the Statistics Estonia about 2017: final consumption increased by 2.8% in 2017 compared to 2016.

		consumption
Total number of cumulating milestones in the period	55	Considering the principle of cumulativeness, the period 2021-2030 can be observed as 55 single parts with a milestone where the energy saving target of each part equals to 0.8% of the average final energy consumption
Required energy-saving between 2021-2030, TJ	52,800	55, 960 = 52,800
Required energy-saving between 2021-2030, GWh	14,667	1 GWh = 3.6 TJ

Based on the Energy Efficiency Directive, different methods can be applied to calculations of the required cumulative energy saving. At the same time, the application of these methods does not change the volume of required cumulative energy saving over the period 2021-2030.

The total floor area to be renovated of public bodies' buildings over the period 2021-2030

As one of the expected outcomes, ESDP 2030 describes that in 2030, 37% of the total floor area of the public bodies' buildings are in the buildings that comply at least with the minimum requirements of the energy efficiency enforced in 2013. As of 01.01.2018, the total useful floor area with more than 250 square meters of the buildings used by the public bodies' buildings based on the ownership or contratto di comodato in the territory of the Republic of Estonia was 1,354,752.1 m². Hence, to achieve the recommended target of ESDP 2030, it must be ensured that the buildings that are used by the public bodies' buildings that comply with the minimum energy efficiency requirements enforced in 2013 have the total useful floor area of at least 500 thousand m². Over the period 2014-2020, the expected total useful floor area of the reconstructed buildings is an average of 30,000 m² a year (in 2014, buildings were reconstructed to comply with the minimum energy efficiency requirements of 2013 in the volume of 56,321 m², in 2015 the number was 30,740 m² and in 2016 it was 40,701 m²). Hence, over the period 2021-2030, total of 290,000 m² of buildings must be renovated to achieve that target¹⁸.

Executive summary

Targets for Estonia in the energy efficiency are provided in the table below (see Table 4).

Table 4. Estonian targets for energy efficiency for 2030

ESDP 2030 target: 2. More efficient use of primary energy: Estonian energy supply and consumption is more sustainable

Source	Objective name	Objective
ESDP 2030 table 1.3	Overall target of energy efficiency: primary energy consumption in 2030	\leq 230 PJ ¹⁹

¹⁸ 500 000 - $(7 \cdot 30\ 000) = 290\ 000$

¹⁹ It is planned to review this number based on the results of the modelling carried out within the framework of the air pollutants reduction program.

The cumulative amount of end-use energy savings to be achieved over the period 2021-2030	14,422 GWh
The total floor area to be renovated of public bodies' buildings over the period 2021-2030	290,000 m ²

Final energy consumption to meet the overall target of energy efficiency in Estonia forms _____ in 2030. Annex Annex V of this document describes the conversion of the set energy efficiency overall target and the underlying methodology for final energy consumption.

ii. The indicative milestones for 2030, 2040 and 2050, the domestically established measurable progress indicators, an evidence-based estimate of expected energy savings and wider benefits, and their contributions to the Union's energy efficiency targets as included in the roadmaps set out in the long-term renovation strategies for the national stock of residential and non-residential buildings, both public and private, in accordance with Article 2a of Directive 2010/31/EU.

The previous national reconstruction strategies for buildings ²⁰ was submitted to the European Commission based on the Energy sector organisation Act and ESDP 2030 in October 2017.

ESDP 2030 foresees the target levels and measures for reconstruction of buildings. These targets can be achieved by producing more renewable energy in the buildings. The following table (see Table 5) describes the outcomes expected as the result of the implementation of the measures of ESDP 2030.

Table 5. Targets and measures for reconstruction of buildings

ESDP 2030 target: 2. More efficient use of primary energy: Estonian energy supply and consumption is more sustainable

ESDP 2030 measure	Barometer	Indicative target
2.4.	3. Share of small residential buildings from the total building stock with energy performance indicator class is at least C or D	\geq 40%
2.4.	3. Share of small apartment buildings from the total building stock with energy performance indicator class is at least C	≥ 50%
2.4.	3. Share of non-residential buildings from the total building stock with energy performance indicator class is at least C	≥20%

²⁰ National buildings' renovation strategy to improve energy efficiency, Ministry of Economic Affairs and Communications 2017, <u>https://ec.europa.eu/energy/sites/ener/files/documents/ee_building_renov_2017_et.pdf</u>. Based on the Estonian legislation, here the term "reconstruction" is more relevant instead of "renovation".

The updated long-term reconstruction strategy must be submitted to the European Commission by 10 March 2020^{21} . This document does not concern the indicative milestones for 2040 and 2050 of the renovation strategy of buildings to be submitted on 2020 based on Article 2a of the EU Directive $2018/844^{22}$ on energy efficiency of buildings.

iii. Where applicable, other national objectives, including long-term targets or strategies and sectoral targets, and national objectives in areas such as energy efficiency in the transport sector and with regard to heating and cooling.

ESDP 2030 addresses thoroughly the energy consumption in transport and the district heating sector, including cogeneration. ESDP 2030 also considers modernisation of the street lighting and energy savings in the production companies important. Efficiency is greatly affected by the use of oil shale in the Estonian energy sector. One of the strategic targets of the "National Development Plan for the use of Oil Shale, 2016-2030⁴²³ that the Riigikogu approved on 16 March 2016 is to increase the efficiency of the use of oil shale and reduce negative environmental impacts. Achievement of the indicative targets is applied with measures for increasing the energy efficiency of different sectors that are described in the table below (see Table 6).

 Table 6. Sectoral targets in energy efficiency

consumption is more sustainable			
ESDP 2030 measure	Barometer	Indicative target	
1.1	4. Electric power of the cogeneration stations producing to the additional district heating network built over the period 2020-2030, MW _{el}	25 MW _{el}	
2.2	1. Transport demand in use of passenger cars compared to 2010, %	Increase ≤ 5% (2030)	
2.3	2. Fuel consumption of the transport fleet in 2030 will not exceed the level of 2012	\leq 8,3 TWh	
2.6	1. Reduction of the heat loss of the district heating by 2030 (compared to 2012), TWh	0,1 TWh	
2.8	1. Energy saving of manufacturing companies, GWh/a	460 (in 2023)	
2.8	2. Number of renovated street lighting points	22,000 (in 2023)	
Strategic target of			

ESDP 2030 target: 2. More efficient use of primary energy: Estonian energy supply and consumption is more sustainable

²¹ Point (b) of Article 55 of the Regulation (EU) 2018/1999.

²² <u>http://data.europa.eu/eli/dir/2018/844/oj</u>

²³ <u>https://www.riigiteataja.ee/aktilisa/3180/3201/6002/RKo_16032016_Lisa.pdf#</u>

National Development Plan for the use of Oil Shale 2030		
2.	 Energy efficiency of the oil shale production, % 	Over 76% (specified in 2025)

2.3. Dimension Energy security

i. The elements set out in point (c) of Article 4.

According to point (c) of Article 4 of the Regulation (EU) 2018/1999, the NECP 2030 document should indicate the following information of objectives or targets:

- in security of supply, i.e. in diversification of the use of energy source sand third county imports;
- in increasing the flexibility of the energy system:
- in the case of difficulties in the supply of energy source(s).

The following gives an overview of the sectoral targets in different energy systems by parts.

Flexibility in electrical system

Adequacy and flexibility of the electrical system (its increasing) is ensured by the Electrical Market Act and the synergy with the legislation established based on it. According to the valid Electrical Market Act, the system operator (incl transmission system operator) in Estonia develops the system in their service area in a way that ensures an opportunity for provision of consistent network service that is based on the legislation and activity license to the consumers, producers, transmission line owners and other system operators who are connected to the system considering their grounded needs and connect the due electrical installation of the market operator in their service area. By developing the network, the system operator will follow the need for ensuring the security of supply, efficiency and market integration by considering the results of the research conducted in these sectors.³⁸ Targets of the ESDP 2030 security of supply's sub-target's measure 1.1 (Developing the electrical energy production;) and 1.2 (Transmission eligible for electrical energy sector needs and efficient transmission) (see Table 7 and point 2.4.3) will be followed for ensuring the electrical system adequacy and development of energy system flexibility.

ESDP 2030 target: 1. Security of supply: Continuous energy supply is guaranteed in Estonia		
ESDP 2030 measure	Barometer	Indicative target
1.1.	2. Share of fuel free energy sources (sun, wind, hydroenergy) in the final power consumption, %	>10% (2030)
1.1.	4. Electric power of the cogeneration stations	817.5 (2030)

Table 7. Targets for ensuring electricity system adequacy and the flexibility of the energy system³⁷

	producing to the district heating network built, MW_{el}	
1.2	1. An average total duration of interruptions in the distribution system per point of consumption a year, minutes:	≤90 (2030)
1.2	2. Amount of energy not provided in the transmission system, MWh	≤150 (2030)

Security of supply in electrical system

Targets of the ESDP 2030 security of supply's sub-target's measure 1.1 (Developing the electrical energy production;) and 1.2 (Transmission eligible for electrical energy sector needs and efficient transmission) (see Table 8 and point 2.4.3) will be followed for ensuring the electrical system adequacy and development of energy system flexibility.

Table 8. Targets for ensuring the security of supply of the electricity³⁷

ESDP 2030 target: 1. Security of supply: Continuous energy supply is guaranteed in Estonia			
ESDP 2030 measure	Barometer	Indicative target	
1.1.	1. Existence of local power generation capacities for performing the N-1-1 criterion	Completed (2030)	
1.1.	2. Share of fuel free energy sources (sun, wind, hydroenergy) in the final power consumption, %	>10% (2030)	
1.1.	4. Electric power of the cogeneration stations producing to the district heating network built, MW_{el}	817.5 (2030)	
1.1.	5. Share of imported fuels in power generation	<50%	
1.1.	6. Share of domestic electricity in the conditions of the open market	>60%	
1.2	1. An average total duration of interruptions in the distribution system per point of consumption a year, minutes:	≤90 (2030)	
1.2	2. Amount of energy not provided in the transmission system, MWh	≤150 (2030)	
1.2	3. State's availability of external connections, %	96% (2030)	
1.2	5. Building of new 330 kV (Sindi-Riga and Sindi- Harku) lines	Built (2020)	
1.2	6. Estonia is connected to the synchronous area controlled in the European Union	Connected (2030)	

Investments to the Baltic States made within the framework of the synchronisation project of the Baltic States (see point 2.4.2) that help eliminate the bottlenecks in Estonia as well as other Baltic States and increase the readiness of the external connections and flexibility of the

electrical system to fast changes in the power generation also contribute to the resilience of the electrical system.

<u>Gas system</u>

According to the Natural Gas Act, the system operator is responsible for ensuring the security of supply of the natural gas. The system operator is obliged to ensure the security of supply and balance of the gas system at any moment according to the concluded agreements. Upon developing the gas system, the system operator follows the known demand and its projection, including the known new connectees. Thereat, the N-1 criterion ²⁴ of the infrastructure standard must be met at any time.

The sub-objective 1.3 (Ensuring the gas supply) of ESDP 2030 security supply reflects ensuring of the gas system security of supply.

ESDP 2030	Barometer	Indicative target
measure		
1.3.	1. Performance of the infrastructure standard (N-1)	Completed
1.3.	2. Share of the biggest supply source in the gas supply	70% (2030)
1.3.	3. Share of the biggest gas seller in the market	32% (2030)
1.3.	4. Meeting the standard for security of supply	Completed (2030)
1.3.	5. Gas market concentration (HHI ²⁵)	<2000 (2030)
1.3.	6. Estonian-Finnish gas connection Balticconnector	Built (2019)

To reduce the probability of the factors that impact the security of gas supply and to ensure the readiness for coping with large-scale supply disruptions, the Minister of Economic Affairs and Infrastructure approves the plan for safeguarding the gas supply disruptions and the preventive action plan for reducing the risks that affect the security of gas supply every two years (based on Regulation (EU) No. 2017/1938). The last respective plan was approved in 2017^{26} .

 $^{^{24}}$ N-1 criterion means assessment of the situation where one of the biggest connections for gas supply is interrupted. If, upon interruption, it is possible to reorganise the supplies to that there will be no disturbances in the supply, the N-1 criterion is met.

²⁵ HHI - Herfindahl-Hirschmani index that varies within the range of 0..10000 and for which the squares of each single gas seller's market share are added [$\sum (x_i)^2$]. The higher value characterises the higher dependence of the gas market from one gas seller. For HHI<2000, there are 7 gas sellers among who the biggest one's share is below 32%.

²⁶ Preventive action plan for reducing the risks affecting the security of gas supply. Plan for safeguarding the gas supply disruptions (2017) - <u>http://www.konkurentsiamet.ee/index.php?id=18309</u>.

ii. National objectives with regard to increasing the diversification of energy sources and supply from third countries for the purpose of increasing the resilience of regional and national energy systems

The rate of dependence from the imported energy in Estonia is one of the smallest among the EU States but in respect of the natural gas and motor fuels, Estonia largely depends on import. If, for the motor fuels it is possible to use different supply channels, opportunities are more limited for the natural gas supplies. In response, ESDP 2030 document has targets for diversification of the gas supply that is described in Table 9 chapter 2.3.i

iii. Where applicable, national objectives with regard to reducing energy import dependency from third countries, for the purpose of increasing the resilience of regional and national energy systems.

To maintain the low import-dependence, it is necessary to hold the high contribution of domestic fuels in the energy balance. An overview of the targets is integrated to the chapter 2.3.i (see Table 8).

iv. National objectives with regard to increasing the flexibility of the national energy system, in particular by means of deploying domestic energy sources, demand response²⁷ and energy storage

Items related to the electrical system flexibility are described in chapter 2.3.i

2.4. Dimension internal energy market

2.4.1. Electricity interconnectivity

i. The level of electricity interconnectivity that the Member State aims for in 2030.

The target level of the electrical interconnectivity of the EU Member States is 10% for 2020 and 15% for 2030²⁸. Collaboration between the Member States is of critical importance in increasing the electricity interconnectivity. The Member States should rely on three criteria for achieving the interconnectivity level:

- a) The price differential of the pool price of the electricity among the regions, Member States or bidding zones exceeds 2€/MWh;
- b) nominal transmission capacity of interconnectors is below 30% of their peak load;
- c) nominal transmission capacity of interconnectors is below 30% of installed renewable generation capacity.

²⁷ In English: *demand response*

²⁸ European Commission. Communication on strengthening Europe's energy networks. <u>https://ec.europa.eu/energy/sites/ener/files/documents/communication_on_infrastructure_17.pdf</u>

It is important to note that planning of new cross-border interconnectors must consider the socio-economic and environmental impacts.

In 2017, electrical interconnectivity level of Estonia with the countries of the EU (Latvia, Finland) was $63\%^{28}$. The interconnection capacity from EE to LV was 900 MW, and 1016 from EE to FI. It is estimated that the capacity from EE to LV will increase to 1379 MW by 2030^{29} based on finishing the third Estonia-Latvia interconnection³⁰. The long-term development plan (TYNDP 2018³¹) of ENTSO-E has estimated that in 2030, Estonia will perform all three criteria above in case of all analysed scenarios (Figure 3).

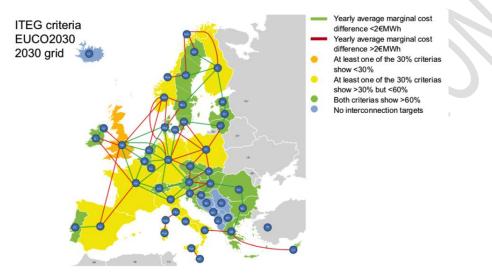


Figure 3. Performance of the electricity interconnection criteria in 2030 in respect of EUCO 2030 scenario^{31, 32}

Although Estonia and other Baltic States perform the three criteria of the electricity connectivity, the networks of the Baltic States have not been fully interconnected to the EU electricity networks. Namely, the Baltic States are not located in the synchronous area subject to EU law. Estonian, Latvian and Lithuanian electricity systems are operating synchronously with the Russian Unified Energy System (IPS/UPS). Synchronisation of the electrical system of the Baltic States to the synchronous area subject to the EU law around 2025 is one of the most important energy policy targets for Estonia and other Baltic States and affects significantly the long-term development of the electricity network. The Prime Ministers of the Baltic States, the President of the European Commission and the Prime Minister of Poland confirmed in the roadmap³³ that was signed in the summer of 2018 the importance of the synchronisation project and recognised the wish of the Baltic States to synchronise to the Continental Europe mains frequency. The interconnections between the Baltic States will also

²⁹ ENTSO-E. TYNDP 2018. Input data. <u>https://tyndp.entsoe.eu/maps-data/</u>

³⁰ Elering AS: The third Estonia-Latvia interconnection <u>https://elering.ee/eesti-lati-kolmas-uhendus</u>

³¹ ENTSO-E. TYNDP 2018. Europe's Network Development Plan to 2025, 2030 and 2040. <u>https://tyndp.entsoe.eu/tyndp2018/</u>

 $^{^{32}}$ EUCO 2030 scenario = Scenario for meeting the EU-wide energy and climate objectives agreed in 2014.

³³ Political Roadmap on the synchronisation of the Baltic States' electricity networks with the Continental European Network via Poland.

https://ec.europa.eu/energy/sites/ener/files/documents/c_2018_4050_en_annexe_acte_autonome_nlw2_p_v2.docx

be strengthened within the framework of the synchronisation project and the project contributes to the increase in the electricity interconnection of Poland³⁴.

³⁴ ENTSO-E. Project 170 – Baltics synchro with CE. Interconnection targets. <u>https://tyndp.entsoe.eu/tyndp2018/projects/projects/170</u>

2.4.2. Energy transmission infrastructure

i. Key electricity and gas transmission infrastructure projects, and, where relevant, modernisation projects, that are necessary for the achievement of objectives and targets under the five dimensions of the Energy Union Strategy.

Electrical system

The biggest target for Estonian electricity system in the nearest future (until 2030) is to synchronise the electrical system to the mains frequency subject to the EU law. The Baltic States synchronisation project has been in the list of EU (*Projects of Common Interest – PCI*) from 2013 and relevant activities have been undertaken within its framework in Estonia, Latvia, Lithuania and Poland.(Figure 4).



Figure 4. Synchronisation of the Baltic electricity system with the mains frequency range of Continental Europe³⁴

Activities undertaken in the Estonian electricity grid within the framework of the synchronisation project are presented in the following table (see Table 10). These projects will be implemented in collaboration of the Baltic States and Poland. An accurate review of the status and activities of the project is available on the ENTSO-E web page that describes the project³⁴.

Investment name	PCI	Investment volume,	Time
	number	million euros	
L386 Kilingi-Nõmme-Riga	4.2.1	120	2020
L735 Harku-Sindi	4.2.2	60	2021
L300 Balti-Tartu	4.8.2	51	2024
L301 Tartu-Valmiera	4.8.1	31	2025
L353 Viru-Tsirguliina	4.8.4	73	2025
Modernisation of the Estonian control	4.8.9	33	2024
systems of the electrical system			
Total		368	

The synchronisation project will contribute to the following barometers of the EU Energy Union Strategy:

- Energy security, solidarity and trust;
- A fully-integrated internal energy market
- Climate actions economy decarbonisation;
- Research, innovation and competitiveness.

Gas system

The biggest challenges of the Estonian gas system include interconnection of the system to the Finnish gas system via building the Balticconnector by 2019 and associated renovation of the Karksi gas-metering station by 2019. According to the project, the transmission capacity of the Balticconnector is 7.2 million m³ of natural gas a day. Renovation of the metering station will ensure two-way gas flow between Estonia and Latvia. Facilities related to the Balticconnector and its building have been in the PCI list from 2013 (Balticconnector project number 8.1.1).

Upon completion of the Balticconnector, it will contribute to the physical integration of the region's gas market and market liquidity as follows:

- Improved security of natural gas supply in Estonia as well as Finland;
- Bigger natural gas market that covers Finland and the Baltic States with alternative supply channels that will increase competition in the gas market;
- Improved opportunities for using the renewable energy (biomethane);
- Increase in security of natural gas supply in the Baltic States-Finland area by giving the natural gas equal opportunities for competing with other primary fuels;
- Improved integration of the single gas market that covers Finland and the Baltic States with the EU single market when the Lithuanian-Poland gas interconnector GIPL will be completed;
- Isolation of Finland from the natural gas interconnector system will disappear so that it will give Finland an access to the underground gas storage in Latvia.

Building of the Balticconnector will expand the interconnections of Estonian-Latvian gas systems. The content of the project is to improve the interconnection pipeline between Estonia and Latvia that covers building of the compressor station and a new gas metering station to Estonia.

The Balticconnector will contribute to the following barometers of the EU Energy Union Strategy:

- Energy security, solidarity and trust (improved security of gas supply);
- Fully integrated domestic energy market (Finnish gas market is interconnected with the gas market of the Baltic States and in the future with the gas market of the Central Europe);
- Climate measures decarbonisation of the economy (transmission of the gas produced from renewable energy source);
- Research, innovation and competitiveness (liquid market, new opportunities in the market).

ii. Where applicable, main infrastructure projects envisaged other than Projects of Common Interest³⁵.

2.4.3. Market integration

i. National objectives with regard to other aspects of the internal energy market, including a timeframe for when the objectives are to be met.

This chapter has to give an overview that handles the national objectives with regard to other aspects of the internal market. These include, for example, increasing system flexibility, in particular related to the promotion of competitively determined electricity prices in line with relevant sectoral law, market integration and coupling, aimed at increasing the tradeable capacity of existing interconnectors, smart grids, aggregation, demand response, storage, distributed generation, mechanisms for dispatching, re-dispatching and curtailment, and real-time price signals.

Electrical system

>90% of the capacity of the Estonian electrical system's interconnection lines with our neighbouring countries have been made available to the market in the direction from Estonia to outside (Table 11).

Limit	Orientation	Maximum power (in mWatt)	Capacity made available to the market, (mWatt)	Share, %
EE-FI	EE->FI	1000	965	97%
EE-FI	FI->EE	1000	975	98%
EE-LV	EE->LV	836	779	93%
EE-LV	LV->EE	836	670	80%

Table 11. Capacity of the external connection made available to the market in Estonia in 2016³⁶

Objectives and barometers relating to market integration and coupling are defined in the Estonian National Energy Development Plan 2030 (ESDP 2030)³⁷ (Table 12). The development plan sets the indicative target level of 96% for the external interconnection availability in 2030. The table above (Table 11) shows that this level has been achieved for the EE-FI interconnections. Measure "Installation of new 330 kV (Sindi-Riga and Sindi-Harku) lines" (so-called the third Estonia-Latvia interconnection) of the sub-objective of the ESDP 2030 security of supply addresses increasing the availability of the EE-LV interconnectors, which performance is planned to 2021. Also other investments in the Baltic States made within the framework of the synchronisation project contribute to increasing the availability of external interconnectors (see chapter 2.4.2) that help eliminate the bottlenecks in all Baltic States and increase the resilience of the electrical system to the fast changes in the production and consumption.

³⁵ In accordance with Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009 (OJ L 115, 25.4.2013, p. 39).

³⁶ ACER. Market Monitoring Report 2016.

https://www.acer.europa.eu/Official documents/Acts of the Agency/Publication/ACER%20Market%20Monito ring%20Report%202016%20-%20ELECTRICITY.pdf

³⁷ Government of the Republic Estonian National Energy Development Plan 2030 https://www.mkm.ee/sites/default/files/enmak_2030.pdf

Table 12. Objectives and barometers relating to market integration and coupling³⁷

ESDP 2030 target: 1. Security of supply: Continuous energy supply is guaranteed in Estonia		
ESDP 2030 measure	Barometer	Indicative target
1.2	3. State's availability of external connections, %	96% (2030)
1.2	5. Building of new 330 kV (Sindi-Riga and Sindi- Harku) lines	Built (2020)
1.2	6. Estonia is interconnected with the synchronous area controlled in the European Union	Connected (2030)

In addition to development of the electricity infrastructure, the TSO (Elering AS) as well as the biggest distribution system operator (Elektrilevi OÜ) deal with development projects to favour deployment of the flexibility service in the Estonian electricity system (e.g. H2020 project EU-SysFlex; Deployment of the single balancing services market in the Baltic States from 01.01.2018). The fact that according to the Regulation of the Government of the Republic "Network Code" established based on the Electricity Market Act, all Estonian electricity consumers are supplied with remotely readable meters from 01.01.2017.

Gas system_+|Rein

An overview of the targets relating to the gas market integration is provided in chapter 2.3.i (see Table 9).

Estonian gas market integration with the gas markets of other Baltic States and Finland has been in progress from 2016 when the relevant ministries, system operators and regulators of the Baltic States and Finland act in the name of establishing a single gas market. The parties are organised in a collaborative group with the aim to get to creation of the single price for entering the harmonised market rules and gas system gas (Estonia, Latvia, Lithuania + Finland) by 2020. The Prime Ministers of the Baltic States approved the roadmap with necessary activities in December 2016. One of the most important tasks is to abolish the transmission fees on the borders of the countries on the regional gas market. The target is that from 2019 there will be no transmission fees between Lithuania, Latvia, Estonia and Finland. Only the price of the gas flow incoming to the region will remain (uniform across the region) and the gas flow output price (each country decides itself).

As the result of establishment of the single market of the region, there will be uniform market rules, joint balancing zone across four countries, there are no transmission fees on the borders of the countries and the system operators have a single IT platform for bearing the system liability.

For market integration, the key points of development of the physical infrastructure include completion of the Balticconnector in 2019 and supplementing the interconnector of Estonian-Latvian gas systems with the compressor station and building a new gas metering station.

ii. Where applicable, the national objectives with regard to ensuring electricity system adequacy, as well as for the flexibility of the energy system with regard to renewable energy production, including a timeframe for when the objectives are to be met.

Adequacy and flexibility of the electrical system for producing renewable energy is ensured by the Electrical Market Act and the synergy with the legislation established based on it. According to the valid Electrical Market Act, the system operator (incl transmission system operator) in Estonia develops the system in their service area in a way that ensures an opportunity for provision of consistent network service that is based on the legislation and activity license to the consumers, producers, transmission line owners and other system operators who are connected to the system considering their grounded needs and connect the due electrical installation of the market operator in their service area. By developing the network, the system operator will follow the need for ensuring the security of supply, efficiency and market integration by considering the results of the research conducted in these sectors.³⁸ In the case of grid connections or change in the consumption or production conditions, the electricity producer has to pay all costs necessary for connecting the production capacities or changing the existing production conditions, including the costs for building new electrical installations and renovation of existing electrical installations.³⁹

Table 13. Ensuring electricity system adequacy and the flexibility of the energy system for producing electricity³⁷

ESDI 2030 target. 1. Security of suppry. Continuous energy suppry is guaranteed in Estonia		
ESDP 2030 measure	Barometer	Indicative target
1.1.	2. Share of fuel-free energy sources (sun, wind, hydraulic energy) in the final electricity consumption, %	>10% (2030)
1.1.	4. Electric power of the cogeneration stations producing to the district heating network built, MW_{el}	817.5 (2030)
1.2	1. An average total duration of interruptions in the distribution system per point of consumption a year, minutes:	≤90 (2030)
1.2	2. Amount of energy not provided in the transmission system, MWh	≤150 (2030)

ESDP 2030 target: 1. Security of supply: Continuous energy supply is guaranteed in Estonia

The barometers for meeting the objective direct the system operators to make necessary investments and develop solutions for more efficient integration of the renewable energy to the Estonian electrical system. A good example of this innovation is the map application (Figure 5) developed by the Estonia TSO (Elering AS) that shows the available capacities in the electricity grid belonging to the company by years and enables the renewable energy producers plan their projects more effectively.

³⁸ Riigikogu. Electricity Market Act. <u>https://www.riigiteataja.ee/akt/125012017002?leiaKehtiv</u>

³⁹ Government of the Republic Network code <u>https://www.riigiteataja.ee/akt/116022016014?leiaKehtiv</u>

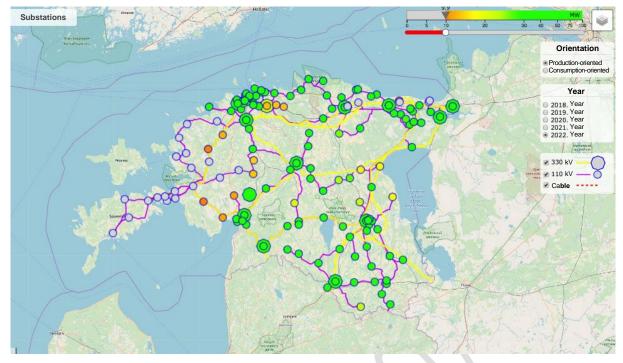


Figure 5. Available connection capacity map application of Elering AS^{40}

The synchronisation project (see chapter 2.4.2) also contributes to the renewable energy integration capacity-building in the framework of which the electrical system bottlenecks will be removed across the Baltic States.

iii. Where applicable, national objectives with regard to ensuring that consumers participate in the energy system and benefit from self-generation and new technologies, including smart meters;

All electricity consumers are equipped with the remote reading devices that record and transmit at least the hourly data to the central database (data storage - e.elering.ee). Consumers have free access to their data. The consumers can also enable access to the data for the freely selected service provider.

iv. National objectives with regard to ensuring electricity system adequacy, if applicable, as well as for the flexibility of the energy system with regard to renewable energy production, including a timeframe for when the objectives shall be met

Described in point 2.4.3 ii.

v. Where applicable, national objectives to protect energy consumers and improve the competitiveness of the retail energy sector

N/A

⁴⁰ Elering AS. Available connection capacity map application <u>https://elering.ee/vabade-liitumisvoimsuste-rakendus/</u>

2.4.4. Energy poverty⁴¹

Where applicable, national objectives with regard to energy poverty, including a timeframe for when the objectives are to be met.

Estonian valid national development documents do not handle the energy poverty as an independent issue. Household subsistence is observed completely on the national as well as local government level. "Welfare Development Plan 2016–2023⁴² focuses on poverty reduction and pursues reduction of the absolute poverty rate to 5.8% and reduction of the relative poverty rate to 15% by 2023.

When in 2013, the number of households who received the subsistence benefit, was 19,320, in 2017 the number was 14,056.

2.5. Dimension research, innovation and competitiveness

i. National objectives and funding targets for public and, where available, private research and innovation relating to the Energy Union, including, where appropriate, a timeframe for when the objectives are to be met

Development documents valid in Estonia do not set the independent research and development targets related to the energy sector. Research and development activities relating to the energy sector contribute to achievement of the general national research and development targets. Estonian research and development and innovation strategy 2014-2020 "Knowledge-based Estonia" focuses on reaching the following targets upon funding the research and development activities:

- Level of the research and development must be at least 3% from the GDP; and
- The research and development costs of the private sector must be 2% of the GDP.
- ii. Where available, national 2050 objectives related to the promotion of clean energy technologies and, where appropriate, national objectives, including long-term targets (2050) for deployment of low-carbon technologies, including for decarbonising energy and carbon-intensive industrial sectors and, where applicable, for related carbon transport and storage infrastructure.

With the document "General Principles of Climate Policy until 2050", the long-term vision of the Estonian climate policy, sectoral and cross-sectoral policies to set clear path to alleviation of climate changes were agreed at national level. According to the first economy-wide policy, **Estonia will be developed into an attractive environment primarily for developing**

⁴¹ In English: *energy poverty*

⁴² <u>https://www.sm.ee/et/heaolu-arengukava-2016-2023</u>

technologies, products and services that reduce the GHG emissions. Also their export and global implementation for solving the global problems relating to the climate change is favoured.

In addition, the sectoral guidelines of the energy and industry handle introduction of the low carbon emissions technology according to the first of which **predominantly**, **implementation of the low carbon emissions technology and efficient use of resources is favoured in the industrial processes.** According to the second guideline on innovation, the research, **development and innovation trends are preferred in restriction of the GHG emissions of energy and industry which will promote development of efficient energy technologies and increase in the value of the domestic renewable energy resource, will increase the energy saving of primary energy an reduce the GHG emissions**.

For more information about the indicated policies, please read the document "General Principles of Climate Policy until 2050"⁴³

iii. Where applicable, national objectives with regard to competitiveness

According to the overall target of the ESDP 2030, contribution of the energy sector to the growth of the competitiveness is sought among others. Its performance is assessed with the barometers of the assessment of performance of the overall target described in the following table.

Table 14. National objectives with regard to competitiveness

ESDP 2030 target: To ensure the consumers the energy supply with the market based price and availability that complies with the EU long-term energy and climate policy targets and at the same time contributing to the improvement of the Estonian economic climate and environmental status and long-term growth of competitiveness.

	Barometer of the ESDP 2030 overall target	Indicative target
	Energy intensity of the economy MWh/1000 € _{GDP2012}	2
	GHG emissions of the energy sector per GDP, $tCO2eq/\epsilon_{GDP2012}$	0.35
	GDP change vs baseline scenario ⁴⁴ , %	3.6%
(\mathbf{P})	Foreign trade balance change in ratio to GDP, v baseline scenario ⁴⁴ , %	2.8%
	Productivity change vs baseline ⁴⁴ , %	2.7%
	Employment change vs baseline scenario ⁴⁴ , %	15,900

⁴³ http://www.envir.ee/sites/default/files/362xiii_rk_o_04.2017-1.pdf

⁴⁴ Compared to the results of the non-intrusive scenario (minimum regulation and supports) in the ESDP 2030 economic impact analysis model

Competitiveness of the final energy scale consumers ⁴⁵	price for the large-
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⁴⁵ Determining the material content of the barometer (incl specifications of baseline and target levels) is carried out during monitoring

3. POLICIES AND MEASURES

3.1. Dimension Decarbonisation

3.1.1. GHG emissions and removals

Policies and measures to achieve the target set under Regulation (EU) 2018/842 as referred in point 2.1.1 and policies and measures to comply with Regulation (EU) 2018/841, covering all key emitting sectors and sectors for the enhancement of removals, with an outlook to the long-term vision and goal to become a low emission economy and achieving a balance between emissions and removals in accordance with the Paris Agreement

In April 2017, Riigikogu approved the Estonian long-term climate policy development document "General Principles of Climate Policy until 2050" (*hereinafter* GPCP 2050). GPCP 2050 is a vision document that provides long-term GHG emissions reduction target and policies for adapting with the climate changes or responding to the climate change impacts to ensure preparedness and necessary endurance.

The principles and guidelines of the document must also be considered in updating and implementation of the cross-sectoral and sectoral strategies and national development plans. The main sectoral policies and principles of the GPCP 2050 covering the whole economy that help to achieve the targets indicated in point 2.1 are provided in the annex to the document (see Annex II). More detailed descriptions of the guideline can be found in the GPCP 2050 document⁴⁶.

Compilation of the development document described above followed also the Estonian national strategy of sustainable development "Sustainable Estonia 21" where one of the targets is maintenance of ecological balance with the aim to treat nature as a value and as a central development resource of the society with overall promotion of Estonia.

The Riigikogu approved the strategy document "Sustainable Estonia 21" in 2005. A separate plan has not been compiled for implementation of the national strategy of sustainable development. The strategy is implemented via the strategies and development plans of different sectors.

Government of the Republic adopted the "Estonian climate change adaptation plan until 2030" and the related implementation plan that was completed in 2016 by the leadership of the Ministry of the Environment in cooperation with other ministries and partners and the Estonian Environmental Research Centre on 2 March 2017. The compilation process of the development plan was supported from the financial mechanism of the European Economy Association. The main objective of the development plan is to increase the preparedness and ability to adapt with the climate changes on the national, regional and local level. Implementation of the action plan will improve readiness and capability for adapting with the impact of climate changes on the Estonian national, regional and local level and find out the areas that are most vulnerable for the climate changes. This action plan will plan and control the area of adaptation with the impact of the climate changes as a whole via the single strategy document and the approach to climate change adaptation will be assembled and harmonised. This will ensure better cohesion of different sectors of climate change adaptation. The action plan sets eight sub-objectives according to the eight priority areas.

⁴⁶ <u>http://www.envir.ee/sites/default/files/362xiii_rk_o_04.2017-1.pdf</u>

In addition to the policies and principles (see Annex II) a separate annex (see Annex III) provides the list of legislation that contribute to the compliance with the objectives indicated in chapter 2.1.1.

The following lists the policies and measures that contribute to meeting the objectives indicated in Table 1 of chapter 2.1.2. More detailed description of the measures is available in a separate annex (see Annex IV).

Policies and measures to achieve the target according to the effort sharing regulation

Cross-sectoral measures with the GHG emissions reduction potential

Cross-sectoral measures for GHG emissions reduction in Estonia are as follows:

- Measure 3 Renewable energy support and support for efficient cogeneration of heat and power;Measure 34 Environmental sustainability measure of the EU common agricultural
- policy; and
- Measure 36 Favouring storage and capture of carbon in the agriculture and forestry.

Measures in business/public and residential sector

Measures to be considered in the residential and business/public sector are mainly related to energy savings via reconstruction of buildings. The main measures that impact the GHG emissions are as follows:

- Measure 19 Reconstruction of public sector and business buildings;
- Measure 20 Reconstruction of private residences and apartment buildings; and
- Measure 21 Establishment of minimum requirements for nearly zero-energy buildings.

Implementation of some measures is still under discussion or release of additional funds are expected for their implementation. Such measures are:

Measure 22 Additional reconstruction of public sector and business buildings; andMeasure 23 Additional reconstruction of private residences and apartment buildings.

The main measure that impacts the GHG emissions of the heat production sector is:

Measure 5 Development of heating sector management.

Implementation of some measures is still under discussion or release of additional funds are expected for their implementation. Such measure is:

Measure 6 Additional development of the heating sector management.

Measures in the transport sector

The main measures that impact the GHG emissions of the transport sector are:

Measure 7	Increasing the percentage of biofuels in the transport sector;
Measure 8	Increasing the fuel efficiency of the transport sector;
Measure 9	Promotion of fuel-efficient driving;
Measure 10	Spatial and land use measures in cities to increase the fuel-efficiency of
	transport and enhancement of the transportation system; and
Measure 11	Development of convenient and modern public transport.

Application of the following measures is still in progress:

Measure 12	Additional increasing of fuel-efficiency of the transport sector;
Measure 13	Additional promoting of fuel-efficient driving;
Measure 14	Additional spatial and land use measures in cities to increase the fuel-
	efficiency of transport and enhancement of the transportation system;
Measure 15	Additional activities for development of convenient and modern public
	transport;
Measure 16	Establishment of road charges for heavy duty vehicles;
Measure 17	Congestion charge in Tallinn; and
Measure 18	Development of railway infrastructure (incl construction of Rail Baltic).

Measures in the industrial sector

The main GHG emissions measure in the industrial products and processes sector is:

Measure 29Research and development activities program of the energy development plan

Measure 30 Implementation of the prohibitions and obligations established in the fluorinated GHG Regulation (EU) No. 517/2014 and Directive 2006/40/EC relating to emissions from air-conditioning systems in motor vehicles

The measures indicated above and their impact are handled as one measure (called the prohibitions and requirements based on the Regulation (EU) No. 517/2014) since the impact of both measures indicated above would be difficult to model separately.

Regulation (EU) No 517/2014 on the fluorinated GHGs (which entered into force on 1 January 2015) establishes the action plan for iterative reduction of F-gases by 2030 that will be implemented by application of the permitted units system and prohibitions/restrictions.

The most important activities for reducing the fluorinated GHGs emissions indicated in Regulation (EU) No. 517/2014 are as follows:

- Prohibitions on placing new equipment on the market;
- Prohibition on service of F-gases which global warming potential is at least 2,500;
- Requirement to extract gases from discarded equipment;
- Obligation to certify the companies that handle gas.

According to the Directive 2006/40/EC, from 1 January 2017, it is forbidden to sell the new EU type-approval passenger cars, pick-up trucks and vans which air-conditioning systems contain refrigerant which global warming potential is higher than 150. Estonia has not established significantly more stringent requirements than laid down in Regulation 517/2014 and Directive 2006/40/EC.

Measures in the agriculture

GHG emissions of the agricultural sector are intended to limit and reduce with the following priorities and measures of the Estonian Rural Development Plan (ERDP) for 2014–2020 that are also indicated in the "Climate change mitigation and climate change adaptation action plan for 2012-2020 in the agricultural sector" and "Estonian organic farming development plan for 2014-2020":

Measure 32 Supporting the organic farming;

Measure 33 Supporting the ecological management; and

Measure 35 Reduce emissions of the GHG and ammonia of the agricultural sector.

Measures to reduce the nitrogen leaks in the agricultural sector

Measures of the Estonian water management plan's operational programme 2015-2021 to help limit the N-discharge from the agricultural sector into the environment are as follows:

Measure 37	Introduction of efficient fertilisation technologies; and
Measure 38	Reduction of pollution from nutrients produced in the agricultural sector.

Measures in the waste sector

The general waste-related requirements and rules are provided with the Waste Act which includes the following measures applied for limiting and reducing the GHG emissions:

Measure 41 Taking the waste to recycling and reuse to the greatest extent possible; and

Measure 43 Prohibition of percentage of biodegradable waste going to landfills and increasing the volume of taking the waste materials to recycling.

The local governments are obliged to establish the waste management rules, including approval and updating the waste management plan, and this is established with the Local Government Organisation Act. According to the waste management plans approved by the majority of the local governments, open incineration of municipal solid waste is prohibited.

"The Estonian environmental strategy until 2030" covers the following policy:

Measure 39 Reduction of amount landfilled.

The national waste plan 2014-2020 aims at introduction of the sustainable waste management based on the waste hierarchy that mainly focuses on modern product design, clean and resource-efficient production and recycling of the produced materials. Reduction of the volume of the hazardous substances in the materials and products is also focused on.

National waste plan covers the following measures for limiting and reducing the GHG emissions:

Measure 40 Avoid and reduce waste generation, including reduce hazardousness of the waste;

Measure 41 Taking the waste to recycling and reuse to the greatest extent possible; and Measure 42 Reduction of the environmental risk from the waste and enhancement of monitoring and management.

Eesti Energia finished building of the modern and efficient Iru Power Plant in 2013 that produces heat and electricity from the mixed municipal waste. Completion of the waste-toenergy plant has reduced taking the huge amounts of mixed municipal waste to the landfills. According to the estimation of the Action plan 2013–2030 for reducing the air pollutant emissions of the Iru Plant, total of 250 kt of mixed municipal waste is used for producing energy. Iru cogeneration plant mainly incinerates Estonian mixed municipality waste added with the imported waste fuel to achieve the yearly target volume of 250 kt.

Policies and measures to achieve the target according to the LULUCF regulation

The Forest Act provides the legal framework for managing the Estonian forests. The main objective of the Forest Act is to ensure protection and sustainable management of the forest as

an ecosystem. The Forest Act encompasses the reforestation measure aiming at recovery of the forest after logging or natural disaster. According to the Forest Act, the forest owner is obliged to ensure resforestation latest within five years after the logging or natural disaster. Supporting the fast reforestation after logging favours consistent carbon capture on the woodland and hence preservation of the GHG capture level of Estonian forests.

"Estonian Forestry Development Plan to 2020" that was approved by the Riigikogu in 2011, is an official sustainable development strategy of the forestry sector. This development plan determines the forestry targets for 2011-2020 and describes the measures and resources to achieve these targets. The main objective of the development plan is to ensure the productivity and viability of the forests, and diverse and efficient use. One of the objectives is to increase the forest increment and carbon capture ability via the relevant forest management activities like regeneration cutting, cleaning and thinning.

The Ministry of the Environment started to draw up the Forestry development plan 2021-2030 in December 2017 by forming a necessary work group for compiling the terms of reference of the development plan. The task of the work group is to find out the forestry problems to be solved and draw up the terms of reference. After completion of the terms of reference, the Ministry of the Environment will coordinate it with the stakeholders and other ministries. Drawing up the development plan considers the sectoral guidelines set in GPCP 2050.

The future role of the LULUCF sector as the capturer or source of GHGs mainly depends on the management-area activities, also the use of the peat soil and arable land and grassland management methods.

The currently valid "Estonian forestry development plan until 2020" highlights that the State has set the objective to increase use of timber since the age-related structure of the Estonian forests enable more large-scale logging (12-15 million cubic meters per year) and failure to use the forest resources would be unreasonable waste of the renewable energy. Estonian Rural Development Plan supports achievement of the objectives set in the "Estonian forestry development plan until 2020", through which the majority of the measures for supporting the private forestry are co-financed. The objective of the Rural Development Plan is to support the Estonian rural life by supplementing other measures set in the EU common agricultural policy, Cohesion Policy and European Common Fisheries Policy. The Ministry of Rural Affairs wishes to help increase the competitiveness of the agricultural sector, enhance the sustainable use of natural resources and enhance the climate measures via implementation of the development plan. The Rural Development Plan is implemented by the measures that are based on the needs and objectives detected during drawing up the development plan. It is planned to implement more than 20 (sub-)measures within the framework of the development plan.

Measures related to forest management

"Estonian forestry development plan until 2020" and RDP 2014-2020 cover the following measures with the aim to ensure sustainable use of the forests, i.e. increase the scope of the forests or carbon pools:

- Measure 44 Increasing the net increment of forests for alleviating the climate changes and capability of carbon capture via timely reforestation;
- Measure 45 Promoting reforestation of the managed private forests with the habitat type compatible tree species;

- Measure 46 Improvement of the forest health and avoiding dispersion of dangerous negative factors;
- Measure 47 Reduction of environmental impacts related to the use of fossil fuels and non-renewable natural resources by increasing the Estonian timber production and use;
- Measure 48 Natura 2000 support for private forest estates; and
- Measure 49 Increasing the economic and ecological viability of the forests.

Measures related to arable land management

- Measure 50 Supporting growing of local plant varieties;
- Measure 51 Regional soil protection support; and
- Measure 52 Crop diversification (measure of EU common agricultural policy).

Measures related to grassland, wetland and pasture management

Measure 53Supporting maintenance of semi-natural habitats; andMeasure 54Securing protection of habitats.

- ii. Regional cooperation in this area, where applicable
- iii. Without prejudice to the applicability of State aid rules, financing measures, including Union support and the use of Union funds, in this area at national level, where applicable

The European Union support and the Union funds are planned to be used in the following measures:

- Measure 5 Development of heating sector management;
- Measure 6 Additional development of the heating sector management;
- Measure 7 Increasing the percentage of biofuels in the transport sector;
- Measure 10 Spatial and land use measures in cities to increase the fuel-efficiency of transport and enhancement of the transportation system;
- Measure 14 Additional spatial and land use measures in cities to increase the fuelefficiency of transport and enhancement of the transportation system;
- Measure 18 Development of railway infrastructure (incl construction of Rail Baltic);
- Measure 19 Reconstruction of public sector and business buildings;
- Measure 20 Reconstruction of private residences and apartment buildings;
- Measure 22 Additional reconstruction of public sector and business buildings;
- Measure 23 Additional reconstruction of private residences and apartment buildings; and
- Measure 28 Synchronisation of the Baltic electricity system with the synchronous areas of Continental Europe;

<The list needs to be supplemented>

3.1.2. Renewables

i. Policies and measures to achieve the national contribution to the binding 2030 Union target for renewable energy and trajectories as referred to in point (a)(2) Article 4, and, where applicable or available, the elements referred to in point 2.1.2 of this Annex, including sector- and technology-specific measures⁴⁷.

ESDP 2030 document describes different measures in order to achieve the renewable energy targets described in the action plan. The following measures of ESDP 2030 contribute most directly to the increase in the growth of the use of the renewable energy:

- Measure 1.1 Development of electrical energy production;
- Measure 1.5 Efficient production of heat;
- Measure 2.1 Increasing availability of alternative fuels in transport

The following measures are applied to achieve the targets described in chapter 2.1.2 which detailed description is provided in annex (see Annex IV) of this document:

Measure 5	Development of heating sector management; and
Measure 7	Increasing the percentage of biofuels in the transport sector

ii. Where relevant, specific measures for regional cooperation, as well as, as an option, the estimated excess production of energy from renewable sources which could be transferred to other Member States in order to achieve the national contribution and trajectories referred to in point 2.1.2

The expert group of statistical transfers in renewable energy trade comprised by the representatives of the ministries and market participants has been convened for implementation of the collaborative mechanisms and mapping the opportunities. Possible cooperating States are mapped in the framework of the expert group work and also an overview of the states that are actively searching for opportunities of the statistical transfers for supporting the development of renewable energy is prepared. In addition, the lists of joint projects and measures that give a clear overview of the projects that Estonia has to offer to other Member States in view of the targets for the next period are mapped. Coordination between the ministries to find solutions for administrative problems are also promoted.

Considering the good wind conditions, availability of the biomass and the volume of the prepared projects in Estonia, the operators who develop the renewable energy here have good opportunities for development of the renewable energy production units with the flexible cooperation mechanisms. More than 4 GW of wind farms on the land and coastal waters, 500 MW pumped-storage hydro accumulation power plant and are in the development phase today in Estonia as well as a significant potential of the renewable energy production from biomass. Considering the Estonian wish to build primarily new market-based electricity production capacities with implementation of flexible cooperation mechanisms, also Estonia's

⁴⁷ When planning those measures, Member States shall take into account the end of life of existing installations and the potential for repowering.

wish to increase the energy security primarily by using the electricity production capacities primarily based on domestic primary energy resources or building fuel free electricity production capacities to Estonia, the realisation of the projects that meet the principles above are supported. According to the projections, the excessive amount of energy produced from the renewable energy sources is Estonia is approximately 3 TWh.

iii. Specific measures on financial support, where applicable, including Union support and the use of Union funds, for the promotion of the production and use of energy from renewable sources in electricity, heating and cooling, and transport

ESDP 2030 document describes different measures in order to achieve the renewable energy targets described in the action plan. The following measures of ESDP 2030 contribute most directly to the increase in the growth of the use of the renewable energy:

- Measure 1.1 Development of electrical energy production;
- Measure 1.5 Efficient production of heat;
- Measure 2.1 Increasing availability of alternative fuels in transport

The following measures are implemented for achieving the targets described in chapter 2.1.2.

- Measure 3 Renewable energy support and support for efficient cogeneration of heat and power;
- Measure 5 Development of heating sector management; and
- Measure 7 Increasing the percentage of biofuels in the transport sector.
- iv. Where applicable, the assessment of the support for electricity from renewable sources carried out pursuant to Article 6(4) of Directive (EU) 2018/2001

According to the subsection 59^4 (1) of the Electricity Market Act (EMA), support is granted to the electricity producer to achieve the renewable energy source electricity production target (17.6%) by 31 December 2020. Riigikogu will approve with its decision the targets for renewable energy source electricity production after 2020 and the changes to the principles of achieving the targets. The Government of the Republic will develop the relevant principles and will submit these to the Riigikogu for approval latest three months before the relevant decision is presumably made by Riigikogu.

Estonian support scheme was changed in June 2018 where the current direct support was replaced with the least cost based scheme. The State has established the target for 2020 in the Electricity Market Act and the "National Renewable Energy Action Plan until year 2020"⁴⁸ for 17.6%. Domestic target for 2030 is determined in the ESDP 2030 document (30%). ESDP 2030 also indicates 50% as the target for electricity production from renewable energy source but this target is set provided that the statistical transfers performed with other countries will become operational.

⁴⁸ <u>https://www.mkm.ee/sites/default/files/taastuvenergia_tegevuskava.pdf</u>

The valid support scheme allows the state to find flexibly and cost-effectively the power energy producers whose production helps contribute to the target of the electrical energy produces from the renewable energy sources. The proposal of the Government of the Republic to the Riigikogu for setting the targets and mechanisms of reaching the targets enables the state to find more expedient way for meeting the targets. The State periodically organises analyses that handle the changes in the support scheme principles and, if needed, makes the Riigikogu a proposal for changing the support scheme mechanisms.

As the result of the scheme from 2007, the level of electricity from the renewable energy of 16.8% from the electricity consumption was achieved in 2017. The dynamics of the electricity production from renewable energy sources is provided in the figure below (see Figure 6).

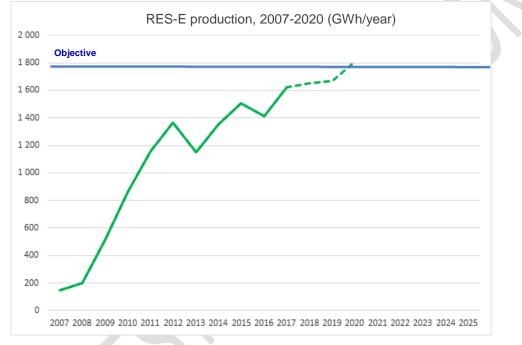


Figure 6. Producing electricity from the renewable energy sources 2007-2020, GWh/a

As projected, the dotted lined volumes in figure (see Figure 6) are produced with the production equipment qualifying under the old support scheme. Total of additional 158 GWh of electricity from the energy source will be placed to the market by 2020 resulting in meeting the objective of the State by 2020.

Considering the ESDP 2030 target (30% RES-E), production capacities that produce electricity from the renewable energy source of _____TWh/year must be placed to the market by 2030. According to the Electricity Market Act, the Government of the Republic will organise the underbidding if the State will not meet the target for electricity produced from the renewable energy source. The person who offers the production with the lowest support rate, will win the underbidding.

- v. Specific measures to introduce one or more contact points, streamline administrative procedures, provide information and training, and facilitate the uptake of power purchase agreements⁴⁹
- vi. Assessment of the necessity to build new infrastructure for district heating and cooling produced from renewable sources.

During the implementation of the "Operational Programme (OP) for Cohesion Policy Funding 2014-2020⁴⁵⁰, the activity "Preparing the development plan of heating" of the measure "Efficient thermal energy production and transmission" was funded, during which 119 projects were created for assessment of the district heating systems and drawing up the future plans. The results of these projects have not been summarised as a whole yet.

The perspective regions for the district cooling in Estonia are the downtown Tallinn and Tartu. There are two district cooling stations operating in Tartu - downtown 13 MW district cooling station and Aardla 5.4 MW district cooling station. The total length of the district cooling route is 2.9 km.

vii. Where applicable, specific measures on the promotion of the use of energy from biomass.

This chapter describes the availability of biomass resources, including domestic potential as well as import from the third countries. Also other biomass uses by other sectors (agriculture and forest-based sectors); as well as measures for the sustainability of biomass production and use are handled.

ESDP 2030 document describes different measures in order to achieve the renewable energy targets described in the action plan. ESDP measure 2.1 "Increasing availability of alternative fuels in transport" contributes to deployment of new biomass resources that is available in the table of measures Measure 7 () of the document annex (see Annex IV). Also Measure 3 () highlighted in annex (see Annex IV) contributes to deployment of biomass resources.

3.1.3. Other elements of the dimension

i. If applicable, national policies and measures affecting the EU ETS sector and assessment of the complementarity and impacts on the EU ETS.

The main domestic fuel is oil shale in Estonia. Hence the "National Development Plan for the use of Oil Shale 2016-2030" was drawn up for ensuring the long-term balanced use of it that determines the usage trends of oil shale as the nationally strategic domestic energy source. Planning covers assessment of use of the shale oil and shale gas by considering the economic,

⁴⁹ Executive summary of the policies and measures under the support framework that the Member States have to adapt according to the subsection 21 (6) and subsection 22 (5) of the Directive (EU) 2018/2001 with the objective to promote and facilitate the development of the self-consumption of renewable energy and renewable energy communities (*facilitate the uptake of power purchase agreements*).

⁵⁰ <u>https://www.struktuurifondid.ee/sites/default/files/rakenduskava.pdf</u>

social, security and environmental protection aspects. Riigikogu approved the development plan in March 2016.

Excise duties

During the last year, the Estonian tax policy has centrally followed the principle that tax burden from taxation of income to taxation of consumption, use of natural resources and pollution of the environment. At the same time the system should remain simple and transparent with as few exceptions and differences as possible. In Estonia, the excise duty is imposed on the following energy carriers⁵¹: electricity, natural gas, common gasoline, aviation gasoline, kerosene, diesel fuel, light fuel oil, heavy fuel oil, oil shale heating oil, liquefied gas, oil shale, coal, lignite and coke.

The valid fuel and electricity excise duty rates exceed the limits established in the EU Directive 2003/96/EC on taxation of energy for the more important energy carriers (e.g. motor fuels, natural gas, electricity), also the VAT differences are not applicable to fuels and electricity.

To ensure the competitiveness of the energy-intensive users, Estonia has taken the excise duty differences into use. For the energy-intensive users, whose energy management system conform to the principles established in ISO 50001, Estonia applies the excise duty $(0,5 \notin/MWh)$ complying with the EU electricity minimum rate. A person is energy-intensive when the cost of consumed electricity forms at least 20% of the added value created by the person.

According to the Directive 2003/96/EC, the tax exemption may be granted to the natural gas (methane) in the Member States where the share of natural gas in the final energy consumption was below 15% in 2000. Tax exemption can be applied during maximum of ten years from the entry into force of the Directive or until the time when the share of the natural gas in the final energy consumption of the Member State reaches 25%, whichever occurs earlier. Estonia established the natural gas excise duty on 1 January 2008. Biogas, including also biomethane is exempt from the excise duty. The State has set the objective to reduce the excise duty rate of the energy-intensive natural gas users to the level of $1.18 \notin$ /MWh. Thereby, the energy management system of such consumer must comply with the principle laid down in ISO 50001. A person is energy-intensive when the cost of consumed gas forms at least 13% of the added value created by the person.

The Directive 2004/74/EC enabled Estonia a transitional period for deployment of the electricity production taxation until 1 January 2010. Despite the taxation, the excise duty on electricity was established in Estonia on 1 January 2008. For the energy-intensive users, whose energy management system conforms to the principles established in ISO 50001, Estonia applies the excise duty of $0.5 \notin$ /MWh. A person is energy-intensive when the cost of consumed electricity forms at least 20% of the added value created by the person.

Reduction of the rate of the excise duty of electricity as well as natural gas, contributes to the energy efficiency and hence reduction of the carbon emissions emitted to air. The excise

⁵¹ More information about the taxed energy products can be found in the Alcohol, Tobacco, Fuel and Electricity Excise Duty Act, see <u>https://www.riigiteataja.ee/akt/127062018007?leiaKehtiv</u>

concession is granted to the person whose energy management system complies with ISO 50001.

Emission charges

Another fiscal measure that impacts the GHG emissions applied in Estonia includes the emission charges. The tax policy of the Government of the Republic is based on the target to reduce the environmental impacts by increasing the emission charges and charges for the use of natural resources. Environmental Charges Act creates a basis for establishing the rates for charges for the use of natural resources and emission charges, establishes their calculation and payment procedure and provides the basis and specific purposes for the use of the budgetary incomes from the use of the environment. Environmental charges are established according to the environmental protection need, State's economic and social situation and are also based on the value created by the natural resources on occasion outlined in the law. Minerals extraction fee that is higher than the minimum rate established in the law is applied with the aim to earn the State income. For the energy producing minerals, also the added value of the energy producing minerals is relied on beside the income earning objective.

Emission charge for emitting carbon into the air was established in Estonia in 2000. Currently the Environmental Charges Act (entered into force in 2006) obliges the owners of the combustion installations to pay the emission charges for the pollutants emitted into the air. All companies from who the Ambient Air Pollution Permit is required have to pay for the emissions emitted into the air. According to the Regulation of the Minister of the Environment, the Ambient Air Pollution Permit is obligatory for the companies who own or use the combustion installations (with solid, liquefied or gaseous fuel) with the net power is 1 MW or higher at burning the fuel. As an exception, only the companies who produce thermal energy have to pay the carbon emission charges. From 2009, the carbon emission charge rate has been 2 €/t. Emission charges must also be paid for the installations that emit nitrous oxide into the air. Emission charge is not imposed for the methane and fluorinated gases (HFC, PFC and SF_6). As an exception, the Environmental Charges Act establishes the opportunity to replace the emission charge (incl carbon dioxide emission charge) with the environmental investments of the companies. The emission charge is replaced with financing if the polluter applies at their own cost the environmental measures that reduce the volume of the emissions or waste by 15% compared to the time before investment.

According to subsection 23 (3) of the Environmental Charges Act, the companies in the EU ETS who produce heat (installations with the installed rated thermal input over 20 MW) do not pay the emission charge according to the higher rate if the quantities of carbon dioxide emitted thereby are covered by additional emission allowances acquired by the person and are recognise in the annual report thereof. Or the higher fee, if the allowed carbon volume is exceeded, is not taken if it is covered with the additional emission allowances.

Measures in the electricity production sector

Earlier, the following measures with significant impact have been implemented in Estonia that significantly affect the Estonian CO_2 emissions until 2030 and that are described in more detail in Annex IV of this document:

- Measure 1 More efficient oil shale utilisation (2×215 MW). Over the period 2004-2005, two PC-boilers were replaced with FBC-boiler blocks (2×215 MW) in Narva Power Plants; and
- Measure 2 More efficient oil shale utilisation (300 MW). Building of an additional FBC boiler block (with capacity of 300 MW) was started in 2011 which is the Auvere oil-shale based power plant. The investment costs were ca 640 million euros. The power plant became operational in 2015 and was fully operable in 2018. The new power plant is designed so that 50% of the used fuel input can be biomass.

ii. Policies and measures to achieve other national targets, where applicable

iii. Policies and measures to achieve low emission mobility (including electrification of transport)

The Government of the Republic entered into the contract with Mitsubishi Corporation in March 2011 for selling the emissions allowance in the scope of million AAUs to initiate the electromobility programme. This programme comprised three parts:

- Ministry of Social Affairs adopted 507 Mitsubishi iMiev electric cars as a pilot project;
- The Ministry of Economic Affairs and Communications developed the support scheme for private persons and legal persons for purchasing electric cars;
- Recharging infrastructure for electric cars covering the entry country was built.

SA KredEx organises allocation of the purchase support and management of the fast recharging network.

Currently the negotiations with the donors of the EEA Financial Mechanism programme donors about the activities of the new performance framework are in progress. One of the discussion subjects is increasing the share of the electricity used in transport, thus reducing the GHG emissions and pollutants emitted into the air (PM2.5, NO_x , and other).

iv. Where applicable, national policies, timelines and measures planned to phase out energy subsidies, in particular for fossil fuels

An overview of the energy subsidies used in Estonia are summarised in chapter 4.6.iv. The most voluminous of these are concerning consumption of fossil fuels. The smaller excise rate is applied to the diesel fuel used in agriculture and light heating oil and support is also given for producing electricity from peat or oil shale processing retort gas on the efficient cogeneration mode. It is not planned to change these two measures, since:

- The smaller excise duty rate of the diesel fuels and the light heating oil supports competitiveness of agriculture;
- It is not possible to build power plants operating of the efficient cogeneration mode due to limited heat demand.

The overall target of the Government for the taxation policy is partial reorientation of taxes with shifting the tax burden from taxation of income to taxation of consumption, use of natural resources and pollution of the environment. Based on this principle, the expedience of the excise duty exemption is considered upon amending the Alcohol, Tobacco, Fuel and Electricity Excise Duty Act.

3.2. Dimension Energy efficiency

This chapter describes the planned policies, measures and programmes to achieve the indicative national energy efficiency target for 2030 as well as other objectives presented in 2.2, including planned measures and instruments (also of financial nature) to promote the energy performance of buildings. ESDP 2030 document describes different measures to achieve one of the two sub-targets of the development plan – Estonian energy supply and consumption is more sustainable – and the barometers that qualify it. The following measures of ESDP 2030 contribute most directly to the energy efficiency:

- Measure 2.1 Increasing availability of alternative fuels in transport
- Measure 2.2 Reducing the demand for motorised individual transport;
- Measure 2.3 Efficient transport fleet;
- Measure 2.4 Increasing energy efficiency of the existing building stock;
- Measure 2.5 Increasing expected energy efficiency relating to new buildings;
- Measure 2.6 Efficient transport of heat;
- Measure 2.7 Example of the public sector; and
- Measure 2.8 Energy saving in other sectors.
- i. Energy efficiency obligation schemes and alternative policy measures under Articles 7a and 7b and Article 20(6) of Directive 2012/27/EU and to be prepared in accordance with Annex III to this Regulation

To achieve the targets described in chapter 2.2, the taxation of the energy carriers and measures in the final consumption sectors are considered.

The energy carriers are taxed with VAT and fuel and electricity excise duty, see also chapter 3.1.3.i. The following measures are applied to achieve the targets which detailed description is provided in annex (see Annex IV) of this document:

Measure 9	Promotion of fuel-efficient driving;
Measure 10	Spatial and land use measures in cities to increase the fuel-efficiency of
	transport and enhancement of the transportation system;
Measure 11	Development of convenient and modern public transport;
Measure 16	Establishment of road charges for heavy duty vehicles;
Measure 18	Development of railway infrastructure (incl construction of Rail Baltic);
Measure 19	Reconstruction of public sector and business buildings; and
Measure 20	Reconstruction of private residences and apartment buildings.

Implementation of the measures listed below will also be considered:

Measure 12 Additional increasing of fuel-efficiency of the transport sector;

Measure 13 Additional promoting of fuel-efficient driving;

Measure 14	Additional spatial and land use measures in cities to increase the fuel-
	efficiency of transport and enhancement of the transportation system;

- Measure 15 Additional activities for development of convenient and modern public transport;
- Measure 17 Congestion charge in Tallinn;
- Measure 22 Additional reconstruction of public sector and business buildings; and
- Measure 23 Additional reconstruction of private residences and apartment buildings.
- ii. Long-term renovation strategy to support the renovation of the national stock of residential and non-residential buildings, both public and private, including policies, measures and actions to stimulate cost-effective deep renovation and policies and actions to target the worst performing segments of the national building stock, in accordance with Article 2a of Directive 2010/31/EU.

The valid "National strategy for the renovation of buildings to improve energy performance"⁵² was submitted to the European Commission in October 2017. The updated long-term reconstruction strategy must be submitted to the European Commission by 10 March 2020²¹.

iii. Description of policy and measures to promote energy services in the public sector and measures to remove regulatory and non-regulatory barriers that impede the uptake of energy performance contracting and other energy efficiency service models⁵³

Development of the energy services market is regulated with sections 31 and 32 of the Energy Sector Organisation Act. Ministry of Economic Affairs and Communications (MEAC) in cooperation with the organisations Foundation Environmental Investments Centre (EIC), Development Fund and SA KredEX has analysed the potential of the energy services market and possible market barriers upon developing the energy services market. There have also been several round-table discussions on the subject of energy services. The last one took place on 12 April 2018. Thus, the objectives provided for in section 31 of the Energy Sector Organisation Act are met in close cooperation with the stakeholders.

Several instruments that help financing the projects that address the energy efficiency have been developed by the State (SA KredEx, EIC). For example, SA KredEx provides different supports for the apartment associations as well as private person for home renovation. More detailed information is available on the homepage as well as the list of apartment building reconstruction specialists⁵⁴.

The Ministry of the Environment implements the measure "Resource efficiency of the businesses" within the framework of which also the energy services market is developed. The resource efficiency measure also supports procurement of the public sector energy services. This measure covers four activities: awareness raising, specialist training, performance of audits/resource use analysis and investments⁵⁵.

⁵² <u>https://ec.europa.eu/energy/sites/ener/files/documents/ee_building_renov_2017_et.pdf</u>

 $^{^{\}rm 53}$ In accordance with Article 18 of Directive 2012/27/EU.

⁵⁴ http://www.kredex.ee/korteriuhistu/korteriuhistu-toetused/rekonstrueerimise-toetus/tehniline-konsultant-7/

⁵⁵ <u>http://ressurss.envir.ee/</u>

Several companies are active in the Estonian energy services market, like Adven⁵⁶, Fortum⁵⁷, MTÜ Eesti Energiasäästu Assotsiatsioon⁵⁸, Soletek⁵⁹, AU Energiateenus OÜ⁶⁰, and others. Information on conclusion of the energy efficiency agreements and performed projects is available at their homepage.

Other planned policies, measures and programmes to achieve the indicative national energy efficiency target for 2030 as well as other objectives presented in 2.2 (for example measures to promote the exemplary role of public buildings and energy-efficient public procurement, measures to promote energy audits and energy management systems⁶¹, consumer information and training measures⁶², and other measures to promote energy efficiency⁶³).

An exemplary role of the public sector buildings

According to section 5 of the Energy Sector Organisation Act, the energy savings coordinator for immovable property owned by the central government arranges for the renovation of 3% of the total useful floor area of buildings occupied by the central government. Currently the Ministry of Finances performs the tasks of the coordinator for immovable property owned by the central government.

To perform the exemplary role of the public sector buildings, the measures that are described in more detail in document Annex IV;

- Measure 19 Reconstruction of public sector and business buildings;
- Measure 21 Establishment of minimum requirements for nearly zero-energy buildings; and
- Measure 22 Additional reconstruction of public sector and business buildings Are applied.

Promotion of the energy efficient public procurements

Promotion of the energy efficient public procurements in Estonia is based on the Energy Sector Organisation Act, Section 6 of the Act establishes the obligation to purchase only products, services and buildings that are highly energy efficient for the central government. More specific requirements are established with the Regulation "Energy efficiency requirements for the products, services and buildings purchased by the central government".

⁵⁶ https://www.adven.ee/ee/energiateenus/

⁵⁷ https://www.fortum.ee/

⁵⁸ http://www.eesa.ee/esco/

⁵⁹ http://soletek.eu/energiateenused/

⁶⁰ <u>http://energiateenus.ee/</u>

⁶¹ In accordance with Article 8 of Directive 2012/27/EU.

 $^{^{\}rm 62}$ In accordance with Articles 12 and 17 of Directive 2012/27/EU

⁶³ In accordance with Article 19 of Directive 2012/27/EU.

⁶⁴ <u>https://www.riigiteataja.ee/akt/110032017016</u>

In addition, via sharing the best practices, the Ministry of Economic Affairs and Communications has to encourage the public sector institutions, including the regional and local level institutions to follow the example of the central government and purchase only the products, services and buildings that are highly energy efficient. Specific activities are carried out as project-based.

Energy audits

Section 28 of the Energy Sector Organisation Act (ESOA) handles the obligation of the entrepreneurs to perform regular energy audits According to subsection 28 (1) of ESOA, an undertaking which is not a small or medium-sized enterprise or a distribution network operator or transmission network operator, must undergo the energy audit referred to in Article 8 of the EU Energy Efficiency Directive section 2012/27/EU every four years.

The energy savings coordinator draws up and publishes in their web page the list of large enterprises. The target for drawing up and publishing the list of large enterprises is informing the large enterprises as well as helping the Technical Regulatory Authority (TRA) in organising the supervision.

The minimum requirements of the energy audit are laid down with the Regulation No. 76 (available on 12 June 2018) "Minimum requirements of the energy audit"⁶⁵ of the Minister of Economic Affairs and Infrastructure that was adopted on 22 December 2016. The first deadline for the energy audit of the large enterprises in Estonia was 23 April 2017. According to section 12 of the Regulation No. 76, the undertakings could submit the energy audit by the simplified procedure. The next deadline for the energy audit is 05 December 2019 and thereafter every four years.

The obligation of the energy audit for the large enterprises is consistent with the ongoing energy and resource efficiency measure planned under the leadership of the Ministry of the Environment in the period of EU structural instruments. This measure targets establishing the basis for the growth of the resource efficiency of industry in the future and it is primarily aimed at the small and middle size businesses. This measure includes four activities:

- awareness-raising;
- Training for professionals;
- analysing the audits or resource usage and
- investment.

Replacement of pipelines

Reduction of the diameter of the district heating pipeline and installation of the pre-insulated pipes is continued. More detailed description of the measure is available at <u>https://www.mkm.ee/sites/default/files/180917_energiatohusus_2030_aruanne.pdf</u>

v. Where applicable, a description of policies and measures to promote the role of local renewable energy communities in contributing to the implementation of policies and measures in points i, ii, iii and iv

⁶⁵ <u>https://www.riigiteataja.ee/akt/123122016003</u>

vi. Description of measures to develop measures to utilise energy efficiency potentials of gas and electricity infrastructure⁶⁶.

Section 7 of the Energy Sector Organisation Act⁶⁷ governs the use of the gas and power infrastructure potential that obliges the transmission and distribution system operators determine the measures for improvement of the energy efficiency of the network, necessary investments and the agenda for the commissioning and submit an overview of these to the energy savings coordinator. The subsections 3 and 4 of the same section lay down that the cost of the energy efficiency measures is considered upon establishing the network fees of the network operators. The network fee cannot hinder improvement of the overall efficiency of the gas or power system, including energy efficiency, demand-side management, participation of the market participants in the balancing market or procurement of additional services.

The following ESDP 2030 measures contribute most directly to the use of the energy efficiency potential of the electricity infrastructure (see also Table 15 about their barometer).

• Measure 1.2 Efficient transmission eligible for electrical energy sector needs

The following measures are applied to use the potential of the gas and electricity infrastructure energy efficiency (see Annex IV of this document):

Measure 24 Increasing the quality of network services;
Measure 25 Increasing the percentage of the weatherproof grid;
Measure 26 Introduction of the fixed fee for transmission and distribution system as considering the fixed costs of the system operator; and
Measure 27 Transition to remote reading system.

Objective: Security of supply: Continuous energy supply is guaranteed in Estonia		
Measure no.	Barometer	Indicative target
1.2	1. An average total duration of interruptions in the	≤90 (2030)
	distribution system per point of consumption a year, minutes:	
1.2	2. Amount of energy not provided in the transmission system, MWh	≤150 (2030)
1.2	4. Share of the weatherproof network in the distribution system	75% (2030)

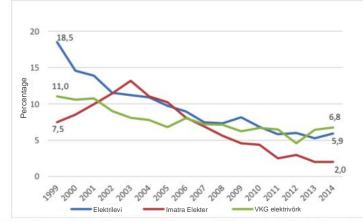
Table 15. Barometers of the measures of	the use of the energy) efficiency notential of t	he electricity infrastructure. ³⁷
rubte fet Burbhieters of the measures of	nie noe of nie energy	gjjteteneg potennen og n	te eteettietty tigi asti hertii et

In addition to the overview of the related measures in the energy sector development plan given in the table above (Table 15), an important measure in increasing the energy efficiency of the electricity networks is installation of the remote reading devices for all consumers (completed on 01 January 2017 - see Measure 27) and optimisation of the consumers' network connections (see more detailed description below).

Or the period 1999...2014, the losses of the three major distribution system operators decreased more than three times (see Figure 7).

⁶⁶ In accordance with Article 15(2) of Directive 2012/27/EU.

⁶⁷ Riigikogu. Energy Sector Organisation Act. <u>https://www.riigiteataja.ee/akt/129062018074?leiaKehtiv</u>



Läänemaa as well as Viimsi areas belong to the licensed territory of Imatra Elekter from 2003.

Figure 7. Relative loss of the biggest distribution system operators⁶⁸

When the loss of the biggest distribution system operator's (Elektrilevi OÜ, \sim 90% market share) was 5.9% in 2014, in 2017 it dropped to 4.1%. The main measure that supported the loss was an obligation to install the remote reading devices to all consumers that was completed by 01 January 2017.

Further increase in the electricity grid efficiency can only take place via the reduction of the grid in under-consumption⁶⁹. For example, the biggest distribution system operator (Elektrilevi OÜ) has >1,100 km of lines and >300 substations from where not a single kWh has passed⁷⁰. The not used line and substations increase the losses and significantly reduce the system efficiency. To solve the problem, the biggest distribution system operator (Elektrilevi OÜ) changed its network fees so that the fixed fee (readiness fee) is applied to the consumption points with no or little (<250 kWh/a) electricity consumption from 01 January 2018. The fixed fee directs the consumers to optimise their network connection (or its use).

The TSO has also the plan to introduce the fixed fee.⁷¹ The size of the losses in the transmission system, among others, depends on the amount of transmitted energy, cross-border energy trading and distribution of the capacity flows in the united energy system and the resulting transit flows, and weather conditions such as humidity and rainfall. In 2016, losses accounted for 3.0% of the total amount of electricity. put into the main grid.

Potential of increasing the gas network energy efficiency lies in the assemblies that use energy. In the essence, the Estonian gas system is a dead-end system which only energy use takes place in the pressure-reducing metering stations where the gas is heated. There are no losses in the network and there are no compressor stations in the network. To ensure that the commercial losses of the transmission and distribution system are reduced to minimum, all gas consumption points need to have the remote reading devices by 2020.

⁶⁸ The Competition Authority. Assessment of the results of the price regulations in regulated sectors. <u>http://www.konkurentsiamet.ee/public/Hinnaregulatsiooni_tulemuste_hindamine_reguleeritud_sektorites.pdf</u>

⁶⁹ Development fund. Current situation of the electricity grid. Possible development scenarios. <u>https://energiatalgud.ee/img_auth.php/1/12/Eesti_Arengufond. Elektriv%C3%B5rgu_t%C3%A4nane_olukord.</u> <u>V%C3%B5imalikud_arengustsenaariumid.pdf</u>

⁷⁰ Elektrilevi OÜ. Changes in network fees. <u>https://www.elektrilevi.ee/hind2017</u>

⁷¹ Elering AS. Open consultations. <u>https://elering.ee/avatud-konsultatsioonid#tab1</u>

vii. Regional cooperation in this area, where applicable.

Estonia participates in the energy market interconnection work group dealing with energy efficiency. The energy efficiency topics are also dealt with in Committees of Senior Officials of the Baltic Council of Ministers, as appropriate. These cooperation formats are described in chapter 1.4.ii.

viii. Financing measures, including EU support and the use of EU funds, in the area at national level

Planning has not yet been started for the next EU budget period 2021-2027. Use of the different financing sources for applying measures indicated in sub-point 3.1.2.i will be analysed at the beginning of 2019 to find out the priorities in financing the climate measures and application of the measures in Article 10 and 10c⁷² of the Directive 2003/87/EC.

3.3. Dimension Energy security⁷³

i. Policies and measures related to the elements set out in point 2.3^{74}

General principles for ensuring the internal security in Estonia are established in the "National Security Concept" approved by the Riigikogu⁷⁵. Energy security is handles as a critical service for ensuring the society's continuity and cohesion. The treatment of the critical service continuity is provided in the "Internal security development plan 2015-2020" approved by the Government and the requirements for the provider of the vital service are described in the Emergency Act. To achieve the energy security, it is necessary to ensure the security of supply, security of infrastructure, interconnectivity with the energy networks of other EU Member States and the diversity of energy sources. The document also emphasises that to reduce the dependence from import, it is of primary importance to increase the energy efficiency of Estonia.

"The National Security Concept" also foresees that the security of supply is better upon more extensive use of the domestic energy resources - oil shale and renewable energy. At the same time, the share of any energy source should not be higher than 30% by 2020.

Electrical system

The following ESDP 2030 measures contribute most directly to ensuring the security of supply and achievement of the related targets (see Table 8):

⁷² Article 10 of the Directive 2003/87/EC on scheme for greenhouse gas emission allowance trading within the Community foresees establishment of the modernisation fund that will finance the energy efficiency and modernisation of the energy system, including in Estonia. Based on Article 10c of the same Directive, on certain conditions, the Member States can allocate the allowances free of charge to the power generation installations. The Member States have to make decision on such allocation before 30 June 2019.

⁷³ Policies and measures shall reflect the "energy efficiency first principle".

⁷⁴ Consistency shall be ensured with the preventive action and emergency plans under Regulation [as proposed by COM(2016) 52] concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010, as well as the risk preparedness plans under Regulation [as proposed by COM(2016) 862] on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC.

⁷⁵ <u>http://vm.ee/sites/default/files/content-editors/JPA_2010.pdf</u>

- Measure 1.1 Development electrical energy production; and
- Measure 1.2 Efficient transmission eligible for electrical energy sector needs

According to subsection 4 (4^1) of the Electricity Market Act, the regulator (Competition Authority) may impose an obligation on the system operator to invite tenders for the creation of new production capacities, energy storage devices or energy efficiency/demand-side management measures if, the capacity reserve of generating installations of the system falls below the capacity reserve established in the grid code.³⁸.

The following measures (see Annex IV) are implemented for achieving the targets described in chapter 2.3 Annex IV:

Measure 3	Renewable energy support and support for efficient cogeneration of
	heat and power;
Measure 25	Increasing the percentage of the weatherproof grid; and
Measure 28	Synchronisation of the Baltic electricity system with the synchronous areas of Continental Europe

Investments to the Baltic States made within the framework of the synchronisation project of the Baltic States (see point 2.4.2) that help eliminate the bottlenecks in Estonia as well as other Baltic States and increase the readiness of the external connections and flexibility of the electrical system to fast changes in the power generation also contribute to the resilience of the electrical system.

<u>Gas system</u>

The following ESDP 2030 measure contributes to ensuring the security of gas supply and achievement of the related targets (see Table 9):

• Measure 1.3 Ensuring the gas supply.

The main instrument for achieving the objectives described in chapter 2.3 is building the gas connection Balticconnector between Estonia and Finland. Additional national measures for increasing the energy security are not planned for the period 2021-2030. At the same time, the private sector considers implementation of projects that contribute to gas supply security (e.g. AS Tallinna Sadam and AS Alexela Invest consider to build the LNG terminal to Paldiski together).

District heating systems

To ensure the security of supply in the district heating systems, the District Heating Act ⁷⁶ foresees additional commitments for the power companies. The power company is the provider of the lifeline services for the district heating systems where more than 50 GWh/year of thermal energy is transmitted to the consumer and that are located in the local government unit with the population of 10,000.

In very big systems, where the consumption on thermal energy is at least 500 GWh/year, the mandatory opportunity to use the reserve fuel in the amount that ensures the heat supply within three twenty-four hour periods.

⁷⁶ <u>https://www.riigiteataja.ee/akt/103032017012?leiaKehtiv</u>

<u>Liquid fuels</u>

Liquid Fuel Stocks Act⁷⁷ is implemented to ensure continuous availability of liquid fuels and one ESDP 2030 measure:

• Measure 1.4 Keeping the gas reserve.

Oil shale

Oil shale will remain an important fuel also during the period 2021-2030 and the following measures of the "National Development Plan for the use of Oil Shale, 2016-2030"²³ will be used for ensuring the security of the oil shale deliveries:

- Measure 1.1. Promotion of sustainable mining of oil shale;
- Measure 1.2. Reducing the negative impact of oil shale mining to the natural environment and water supply;
- Measure 2.1. Increasing the efficiency of oil shale utilisation; and
- Measure 2.2. Reduction of negative environmental impact from the use of oil shale.

ii. Regional cooperation in this area

Electrical system

In addition to the PCI regional groups, the electricity TSO (Elering AS) cooperate in the security of supply area in the following formats:

- 1. Balti regional security coordinator (hereinafter *Balti RSC*)
- 2. Cooperation organisation BRELL of the Belarus, Russian, Estonian, Latvian and Lithuanian system operators.

On 01 January 2018, the Baltics RSC started their activities as the region's security coordinator by ensuring support in increasing the region's security to the Balti system operator by providing necessary services. Baltics RSC is one of the five regional security coordinators acting in Europe that cover all system operators operating in Europe. The objective of the services provided by RSCs is to enhance preparation for real-time control of electrical systems.

The main functions that the regional security coordinator performs are:

- 1. Coordination of the interruptions of the electrical system equipment with cross-border effect;
- 2. Europe-wide compilation of reports on interruptions and coordination of interruptions and detecting the inconsistencies;
- 3. Quality assurance of the common grid models used by the system operators and assembly of the regional and Europe-wide common grid model that covers merging of the system operators' models into a single model on the basis of the uniform standard, assessment of the model quality and giving feedback to the system operators;

⁷⁷ <u>https://www.riigiteataja.ee/akt/101072017019?leiaKehtiv</u>

- 4. Assessment of the regional production adequacy and transmission capacities for a short and medium period in advance that covers assessment of the adequacy of the pan-European production and transmission capacities and assessment of the production adequacy.
- 5. Coordinated calculation of cross-border transmission capacities that covers calculation of the regional transmission capacities on the basis of a single methodology and coordination of capacities among the system operators.
- 6. Coordinated analysis of the operational security of electrical systems during which the bottlenecks of the operational security are found out by using the single grid model and possible solutions are coordinated with the system operators.

The Baltics RSC continuously collaborates with the RSCs of the Nordic countries as well the Central Europe to ensure better collaboration on the borders between the regions. The RSC's role is to be a supervise and a supporter, all final management decisions of the system remain to the system operators who actually manage the system.⁷⁸

Estonian electricity system belongs to the same synchronous area with electricity systems of Belarus, Russia, Latvia and Lithuania (UCTE). The system operator of Russia ensure the automatic regulation of the Estonian electricity system frequency in standard situation (except when the Estonian electrical system operates as isolated from other electrical systems). To organise the synchronous operation in the UCTE, incl ensuring frequency within required limits, the cooperation organisation BRELL of the TSOs of Belarus, Russia, Estonia, Latvia and Lithuania has been established.

Estonian electricity system balance is ensured in coordination with other TSO control centres of the system operators belonging to BRELL and also with the Finnish system operator's control centre in connection with operating the DC connections between Estonia and Finland. According to the agreement with the BRELL's TSOs, the AC balance of the Estonian electricity system (cross-border capacity flow via the AC lines) by hour must be in the range of \pm 30 MWh of the planned balance (Latvian electricity system AC balance \pm 30 MWh of the planned balance is system AC balance \pm 50 MWh of the planned balance).

Elering uses the activation of the balancing reserve and emergency reserve capacities for balancing the Estonian electricity system. Relevant reserve capacities mean manually activated frequency restoration reserve. To ensure the standard operation of the electrical system, Elering does not buy or activate other reserve capacity types like automatically started frequency containment reserve or automatically activated frequency restoration reserve or the replacement reserve. If the projected deviation of the Estonian electricity system AC balance by the end of an hour exceeds the allowed limit, the projected deviation of the summary AC balance of the Baltic States by the end of the hour is checked before activating the reserve capacities for rebalancing. If the projection of the relevant deviation exceeds \pm 50 MWh of the planned deviation, the necessary amount of reserve capacities are started from the joint providers' list for balancing Estonian electrical system. If the projection of the deviation is

⁷⁸ Elering AS. Security of supply report 2018.

https://elering.ee/sites/default/files/public/Infokeskus/elering_vka_2018_web.pdf

smaller than \pm 50 MWh of the planned deviation, the need for activating the reserve capacity is decided on a case-by-case basis⁷⁹.

<u>Gas system</u>

As the gas system operator, Elering AS is involved in the Regional Gas Market Coordination Group (RCMCG) of the Baltic States and Finland. In addition to the system operators of the relevant States, also the controllers and the ministries responsible for the area belong to the work group.

Solid fossil fuels

Estonia does not have any regional or international agreements that deal with supply of solid fossil fuels. At the same time, Estonia has joined one international agreement that may theoretically affect the supply with solid fossil fuels. An act of accession with the contract about Spitzbergen that was adopted by Riigikogu on 4 February 1930⁸⁰, that ratified the "Contract about Spitzbergen"⁸¹, enables Estonia to deal with mining minerals in Sptizbergen, inter alia, among other economic activities. Estonia does not plan the mining-related economic activities in Spitzbergen.

iii. Where applicable, financing measures in this area at national level, including Union support and the use of Union funds.

The Estonian TSO (Elering) in cooperation with Latvian, Lithuanian and Polish TSOs is organising financing of implementation of the measure "Synchronisation of the Baltic electricity system with the synchronous areas of Continental Europe". The TSO finances the electricity grid development-related activities from the network fee collected from the consumers. The resources from the so-called "bottleneck fee" are additionally used for building the cross-border interconnectors. The wish is to use the EU co-financing for financing the measure. The Baltic States synchronisation project has been in the list of EU Projects of Common Interest (PCI) from 2013. Building of the Estonia-Latvia third interconnection, for example, has received the co-financing for implementation of the measure. Project financing has been applied for within the framework of this financing period and financing of these projects is also necessary in the next EU financing period. More detailed information on the project status and activities can be found on the ENTSO-E web page³⁴ that describes the project.

3.4. Dimension internal energy market⁸²

3.4.1. Electricity infrastructure

i. Policies and measures to achieve the targeted level of interconnectivity as set out in point (d) of Article 4

⁷⁹ Elering AS. Balance sheet rules.

https://elering.ee/sites/default/files/attachments/Bilansi_tagamise_ehk_tasakaalustamise_eeskirjad_11_2016.pdf ⁸⁰ https://dea.digar.ee/article/AKriigiteataja/1930/02/18/4

⁸¹ https://dea.digar.ee/article/AKriigiteataja/1930/02/18/5

⁸² Policies and measures shall reflect the energy efficiency first principle.

The target level of the electrical interconnectivity of the EU Member States is 10% for 2020 and 15% for 2030^{28} .

Electricity transmission measures (for more information, see chapter 2.4.2) primarily address the synchronisation of the electrical systems of the Baltic States to the frequency area subject to EU law and increasing the availability of the external interconnections. Activities undertaken within the Baltic States synchronisation project take place in Estonia, Latvia, Lithuania as well as Poland. Investments within the framework of synchronisation strengthen the cross border connections as well as the domestic electricity transmission system. That way, the bottlenecks of the electrical system are removed and the interconnectivity of the energy grids of the Baltic States and Poland is increasing. In 2017, the interconnectivity of the Estonian electricity grids with the neighbouring countries (Latvia, Finland) was $63\%^{28}$. The interconnection capacity from EE to LV was 900 MW, and 1016 from EE to FI. It is estimated that the capacity from EE to LV will increase to 1379 MW by 2030⁸³ based on finishing the third Estonia-Latvia interconnection⁸⁴.

The following measures of ESDP 2030 (**Error! Reference source not found.**) contribute most directly to ensuring the electricity interconnectivity.

• Measure 1.2 Transmission eligible for electrical energy sector needs and efficient transmission

The following measures are applied for achieving the targets described in chapter 2.2.

Measure 28 Synchronisation of the Baltic electricity system with the synchronous areas of Continental Europe.

ii. Regional cooperation in this area⁸⁵

The Baltic States synchronisation project will be implemented in collaboration of the Baltic States and Poland. An accurate review of the status and activities of the project is available on the ENTSO-E web page 2.4.2 that describes the project and chapter 2.4.2.

iii. Where applicable, financing measures in this area at national level, including Union support and the use of Union funds.

The Estonian TSO (Elering) in cooperation with Latvian, Lithuanian and Polish TSOs is organising financing of implementation of the measure "Synchronisation of the Baltic electricity system with the synchronous areas of Continental Europe". The TSO finances the electricity grid development-related activities from the network fee collected from the consumers. The resources from the so-called "bottleneck fee" are additionally used for building the cross-border interconnectors. The wish is to use the EU co-financing for financing the measure. The Baltic States synchronisation project has been in the list of EU Projects of Common Interest (PCI) from 2013. Building of the Estonia-Latvia third interconnection, for example, has received the co-financing for implementation of the

⁸³ ENTSO-E. TYNDP 2018. Input data. <u>https://tyndp.entsoe.eu/maps-data/</u>

⁸⁴ Elering AS: The third Estonia-Latvia interconnection <u>https://elering.ee/eesti-lati-kolmas-uhendus</u>

⁸⁵ Other than the PCI Regional Groups established under Regulation (EU) No 347/2013.

measure. Project financing has been applied for within the framework of this financing period and financing of these projects is also necessary in the next EU financing period. More detailed information on the project status and activities can be found on the ENTSO-E web page³⁴ that describes the project.

3.4.2. Energy transmission infrastructure

i. Policies and measures related to the elements set out in point 2.4.2, including, where applicable, specific measures to enable the delivery of Projects of Common Interest (PCIs) and other key infrastructure projects

Electrical system

Not relevant in respect of the electricity transmission infrastructure. Measures for implementing the PCIs and other main infrastructure projects are described in point 3.4.1.

Gas system

Input for the gas system is indicated in point 2.4.2.

ii. Regional cooperation in this area⁸⁶

Electrical system

Entire relevant information in regard of the electricity transmission infrastructure is described in point 3.4.1.

Gas system

Input for the gas system is indicated in point 2.4.2.

iii. Where applicable, financing measures in this area at national level, including EU support and the use of EU funds.

Electrical system

Entire relevant information in regard of the electricity transmission infrastructure is described in point 3.4.1.

Gas system

Input for the gas system is indicated in clause 2.4.2.

3.4.3. Market integration

i. Policies and measures related to the elements set out in point 2.4.3

Electrical system

The following ESDP 2030 measures contribute most directly to the market integration and coupling of the targets (see Table 12) indicated in chapter 2.4.3.i:

⁸⁶ Other than the PCI Regional Groups established under Regulation (EU) No 347/2013.

• Measure 1.2 Transmission eligible for electrical energy sector needs and efficient transmission

The following measures (for more information about the measure see Annex IV) are implemented for achieving the targets described in chapter 2.4:

Measure 28 Synchronisation of the Baltic electricity system with the synchronous areas of Continental Europe.

Investments in the Baltic States made within the framework of the synchronisation project contribute significantly to market integration (see chapter 2.4.2) that help eliminate the bottlenecks in all Baltic States and increase the resilience of the electrical system to the fast changes in the electricity production and consumption.

Gas system

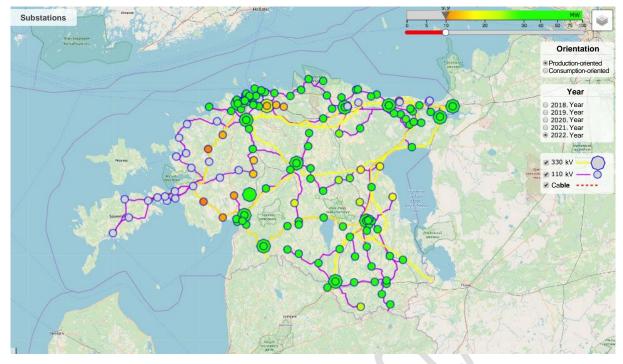
The most important investment of the gas market integration to the physical infrastructure is building of the Balticconnector by 2019 and related supplemental works of the Estonian-Latvian gas system interconnector. The supplemental works include building of the compressor station to Estonia and enabling of the two-way gas flow.

ii. Measures that increase the energy system flexibility for producing renewable energy.

This chapter describes measures to increase the flexibility of the energy system with regard to renewable energy production such as smart grids, aggregation, demand response, storage, distributed generation, mechanisms for dispatching, re-dispatching and curtailment, real-time price signals, including the roll-out of intraday market coupling and cross-border balancing markets. These measures are implemented for achieving the targets (see Table 13) indicated in chapter 2.4.3.ii.

Electrical system

Targets of the ESDP 2030 security of supply's sub-target's measure 1.1 (Developing the electrical energy production;) and 1.2 (Transmission eligible for electrical energy sector needs and efficient transmission) (Table 13)) will be followed for ensuring the electrical system adequacy and energy system flexibility. The barometers of these measures direct the network operators to make necessary investments and develop solutions for more efficient integration of the renewable energy to the Estonian electrical system. A good example of this innovation is the map application (Figure 5) developed by the Estonia TSO (Elering AS) that shows the available capacities in the electricity grid belonging to the company by years and enables the renewable energy producers plan their projects more effectively.



*Figure 8. Available connection capacity map application of Elering AS*⁸⁷

The synchronisation project (see chapter 2.4.2) also contributes to the renewable energy integration capacity-building in the framework of which the electrical system bottlenecks will be removed across the Baltic States.

The system operator (Elering AS) has created a data exchange platform Estfeed for development of the flexibility services market. Estfeed enables secure exchange of messages in the energy sector (Figure 9) – different data sources and applications (Figure 10) who wish to use these data can be interfaced with the platform. Estfeed consists of legal, software and hardware solution to manage the exchange of energy metering data among the market participants, support the electricity supplier change process in the open market and enable an access of the software applications authorised by the consumers to the metering data (e.g. for monitoring and controlling consumption).⁸⁸

⁸⁷ Elering AS. Available connection capacity map application <u>https://elering.ee/vabade-liitumisvoimsuste-rakendus/</u>

⁸⁸ Elering AS. Estfeed. <u>https://elering.ee/elektrituru-kasiraamat/6-kauplemine-avatud-elektriturul/64-tarkvork-ja-andmevahetus-avatud-0</u>

PEER TO PEER DATA TRANSMISSION ARCHITECTURE

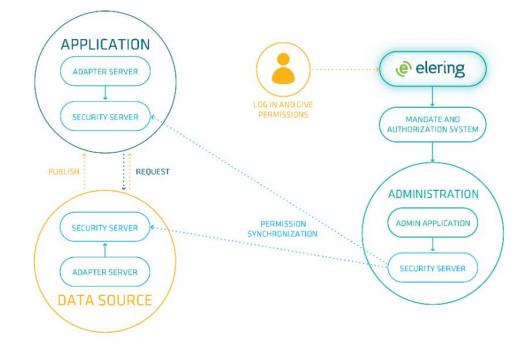


Figure 9. Simplified architecture of Estfeed⁸⁸

COMPLETE PICTURE OF DATA FLOWS

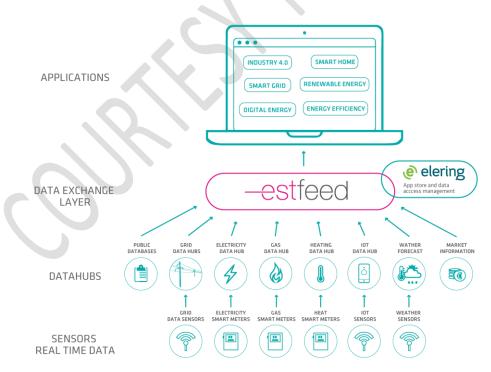


Figure 10. Data movement and management of access rights⁸⁸

Estfeed platform can integrate different data sources (e.g. also the data of the district heating and other remote readers and sensors in the future) and provide appropriate services for changing the data into valuable information for controlling consumption, managing flexibility, auditing and comparing. For example, gas and electricity data storages, Commercial Register, Population Register, Foreca weather information, ENTSO-E Transparency platform are interfaced with Estfeed to obtain the electricity price.

TSO (Elering AS) as well as the biggest distribution system operator (Elektrilevi OÜ) deal with development projects to favour deployment of the flexibility service in the Estonian electricity system (e.g. H2020 project EU-SysFlex; Deployment of the single balancing services market in the Baltic States from 01 January 2018). The fact that according to the Regulation of the Government of the Republic "Network Code" established based on the Electricity Market Act, all Estonian electricity consumers are supplied with remotely readable meters from 01 January 2017.

For the Baltic States, it must be considered that unless the electricity system of the Baltic States is not synchronised with the synchronisation area subject to the EU law, liberalisation of the balancing market is more complicated than in other EU Member States (e.g. price of the balance service is formed significantly based on the balancing deliveries from Russia). The system operators of the Baltic States are actively dealing with the topic of consumption control and are working to launch more flexible capacities to the market (e.g. recent public consultation and the preceded analysis Baltic Electricity Transmission System Operators' Public Consultation on "Demand Response through Aggregation – a Harmonized Approach in the Baltic Region"⁸⁹).

Estfeed platform also reflects the gas system measurement data (e.elering.ee). The consumers themselves can see and authorise the gas sellers to see the gas consumption data. The data of the remote reading devices reach the platform once a day, and of the domestic meters once a month. As for 2020, all gas metering points need to be equipped with the meters that enable remote reading, all consumers are able to see their gas consumption in real-time from 2021.

iii. Where applicable, measures to ensure the non-discriminatory participation of renewable energy, demand response and storage, including via aggregation, in all energy markets.

The Electricity Market Act does not prescribe the discrimination of the market participants. On the basis of a corresponding request, a system operator is obliged to connect the consumers, producers, line possessors or any other network operators to the network at the connection point of any electrical installation which conforms to the requirements and which is located in its service area and change the change the consumption or generation conditions.³⁸ From 20 February 2018, the aggregators are able to enter into the contract with the TSO (Elering AS) for providing the balancing service ⁹⁰, which means that the aggregators are able to participate in the electricity market on the same basis as the other market participants.

According to the Natural Gas Act, the system operator is obliged to ensure an access to the transmission network to the third persons according to the provisions of the Regulation (EC) No. 715/2009.

⁸⁹ https://elering.ee/en/electricity-market#tab0 Baltic Electricity Transmission System Operators' Public

Consultation on "Demand Response through Aggregation - a Harmonized Approach in the Baltic Region".

⁹⁰ Elering AS. Balancing market. <u>https://elering.ee/reguleerimisturg</u>

iv. Policies and measures to protect consumers, especially vulnerable and, where applicable, energy poor consumers, and to improve the competitiveness and contestability of the retail energy market.

In Estonia, the consumers are protected in synergy with the Consumer Protection Act⁹¹, Electricity Market Act,³⁸, District Heating Act and Natural Gas Act. Supervision and settlement of disputes arising from the electricity and natural gas market is divided among several agencies. The Consumer Protection Act solves the issues concerning the contract terms and supervises the advertising and sales activities of the electricity and gas companies. The Competition Board supervises functioning of the market and activities of the market participants based on the Electricity Market Act, District Heating Act and Natural Gas Act. Technical Regulatory Authority deals with issues that concern the electrical safety and meters.

The Consumer Protection Act provides that the consumer has the right to:

- a) demand and obtain goods and services which meet the requirements, are harmless to the life, health and property of the consumers, and are not prohibited from being owned or used;
- b) obtain necessary and truthful information on the goods and services offered in order to make an informed choice, and timely information on any risks relating to the goods or services;
- c) obtain information on consumer law and other issues relating to consumption;
- d) obtain advice and assistance if their rights are violated;
- e) demand compensation for any patrimonial or non-patrimonial damage caused to them;
- f) request that their interests be taken into account and that they be represented through consumers' associations and federations in the decision-making process on consumer policy issues.

Hence the Consumer Protection Act provides general requirements that are specified in the special acts (Electricity Market Act, District Heating Act and Natural Gas Act).

According to section 90 of the Electricity Market Act, during the period from 1 October to 30 April, consumer's network connection in a building or part of a building which constitutes a dwelling and which is used as a permanent residence and heated exclusively or primarily by electricity, or in which the use of electricity is unavoidable for the functioning of the heating system that exclusively or primarily uses another fuel source, cannot be interrupted earlier than within 90 days.

Section 17 of the District Heating Act provides that if a customer has failed to pay the amount due according to the contract entered into with the network operator, the supply of heat required for heating a dwelling may be interrupted during the period from 1 October to 30 April only when 90 days have passed since receipt of the relevant notice and the customer has failed, during this period, to cure the defect which constitutes the basis for interruption of the supply of heat Otherwise, the network operator has to give at least 7 days' notice about interruption caused by indebtedness.

Section 26 of the Natural Gas Act provides that if a household customer has failed to pay the amount payable according to the contract entered into with the seller and the household

⁹¹ Riigikogu. Consumer Protection Act. <u>https://www.riigiteataja.ee/akt/TKS</u>

customer uses gas for heating a dwelling used as a permanent residence, the supply of gas may be interrupted during the period from 1 October to 1 May only when ninety days have passed since the receipt of the relevant notice.

v. Description of measures to enable and develop demand response, including those addressing tariffs to support dynamic pricing⁹²

This area is still developing and hence this area is regulated generally in legislation. More specific regulation will be created, as appropriate and relying on the results of the pilot projects in progress. One aggregator is working within the framework of the pilot project who has been able to enter into the contracts necessary for providing the service with the consumers as well as the system operator. More specific description related to the electricity market is indicated in point 3.4.3. ii.

3.4.4. Energy poverty

i. Where applicable, policies and measures to achieve the objectives set out in point 2.4.4

National policy related to the energy poverty is covered with the Social Welfare Act⁹³, according to which the State supports the people in need with financial aid. The local government pays the subsistence allowance to the people in need, and its application, calculation, granting and payment is regulated with Section 8 of the Social Welfare Act. Subsection 133 (5) "Bases for calculating subsistence benefit" of the Social Welfare Act provides the housing expenses that are considered upon calculating the subsistence benefit, including (points 5-8):

- the cost of thermal energy or fuel consumed for supply of hot water;
- the cost of thermal energy or fuel consumed for heating;
- the costs related to consumption of electricity;
- the cost of household gas;

SA Kredex⁹⁴ provides the following grants for the private persons and apartment associations for improving the living conditions:

- Small residential home reconstruction grant;
- Small residential home's heating system renovation grant;
- Reconstruction grant for apartment associations;
- Housing grant for families with many children:
- Electrical installation renovation grant for private persons and apartment associations.

An advisory unit for adult social welfare will be created to the Estonian National Social Insurance Board from January 2019. The aim of the social welfare's advisory unit is to ensure provision of the cross-national uniform and high quality social welfare aid measures by the local governments after the public administration reform. The advisory unit operating by the Estonian National Social Insurance Board helps implement the national social security policy for adults, apply the national strategies in the area of adult social welfare on the local government level and coordinates the social security-related collaboration across sectors.

 $^{^{92}}$ In accordance with Article 15(8) of Directive 2012/27/EU.

⁹³ https://www.riigiteataja.ee/akt/130122015005?leiaKehtiv

⁹⁴ <u>http://www.kredex.ee/toetus/</u>

To alleviate the energy poverty that might occur during the heating period, the District Heating Act, Electricity Market Act and the Natural Gas Act have distinction that significantly limit common interruption of energy supply. According to the District Heating Act ⁹⁵ and the Electricity Market Act, the electricity supply may be interrupted from 1 October to 30 April only when 90 days have passed from receiving the relevant notice. The same principle has been established in the Natural Gas Act for the period from 1 October to 1 May⁹⁶.

3.5. Dimension research, innovation and competitiveness

i. Policies and measures related to the elements set out in point 2.5

Energy-area research and development

ESDP 2030 plans research and development activities that will contribute to the successful implementation of the 11 measures of the development plan. It is planned to mainstream the activities into the following 7 areas:

- Electricity supply (production, transmission and distribution of electricity). The area covers the activities relating to the ESDP 2030 measure 1.1 "Developing the electrical energy production" and 1.2 ""Efficient transmission eligible for electrical energy sector needs";
- Biomass and fuel in the energy sector and transport. The area covers the activities relating to the ESDP 2030 measure 1.1 "Developing the electrical energy production"; 1.5 "Efficient production of heat" and 2.1"Increasing availability of alternative fuels in transport";
- Use of oil shale and other local non-renewable fuels. The area covers the activities relating to the ESDP 2030 measure 1.1 "Developing the electrical energy production" and Oil Shale Development Plan.
- Connections of transport and mobility with energy sector. The area covers the activities relating to the ESDP 2030 measure 2.2 "Reducing the demand for motorised individual transport" and 2.3 "Efficient transport fleet".
- Energy efficiency in buildings (to be renovated and new building, buildings-related distributed generation solutions). The area covers the activities relating to the ESDP 2030 measure 2.4 "Increasing energy efficiency of the existing building stock" and 2.5 "Increasing expected energy efficiency relating to new buildings";
- Heat supply (efficient heat generation and transmission, heat storage). The area covers the activities relating to the ESDP 2030 measure 1.5 "Efficient thermal energy generation" and 2.6 "Efficient thermal energy transmission".
- Energy savings in consumption (street lighting, industry). The area covers activities relating to Measure 2.8 "Energy saving in other sectors "of ESDP 2030.

⁹⁵ Subsection 17 (4¹) of the District Heating Act

⁹⁶ Subsection 26 (3¹) of the Natural Gas Act

It is planned to describe specific activities in the program that is currently being compiled with the energy research and development companies (mainly the universities) and other stakeholders.

It is planned to start substantive implementation of the program during the first half of 2019. The list of measures (see Annex IV) reflects the programme:

Measure 29 Research and development activities program of the energy development plan.

The large enterprises of the Estonian energy sector are important orderers of energy-area research and development.

Economic competitiveness

Implementation of this programme as a whole has to contribute to promotion of the economic competitiveness and there will be no separate measures for increasing the economic competitiveness. Separate attention to be paid to

ii. Where applicable, cooperation with other Member States in this area, including, where appropriate, information on how the SET Plan objectives and policies are being translated to a national context.

Estonia also participates in the cooperation programme between the Baltic States and Nordic Energy Research which aims to promote the energy research. The baseline document of this collaboration programme was approved in October 2018 and it is planned to finance joint researches, give grants for degree studies for students and finance the exchange of scientists from this programme. The focus will be placed to the following topics in the scientific research programme which financing is agreed until 2021:

- Reduction of the carbon intensity of the transport sector;
- Energy savings in the buildings and industry;
- Energy system analysis;
- Challenges and opportunities in regional energy networks.

iii. Where applicable, financing measures in this area at national level, including EU support and the use of EU funds.

Energy-area research and development activities will be financed from several different sources during this EU financing period. Performance of applied researches with socioeconomic targets that follow the needs of Estonia (so-called RITA programme) will be financed within the framework if the "Operational programme for cohesion policy funds 2014-2020"⁵⁰. Two projects that are directly related to the energy area have been granted the financing through this programme:

- Sub-topic "Development of innovative and more sustainable oil shale or its products' processing technologies" of development of more efficient, environment-friendly and more sustainable use options of natural resources.
- A research on the situation and prospects of Estonian bioeconomy and its sectors. Development of business models in the selected areas of the bioeconomy.

Estonia has also participated in applying for financing the EU programme Horizon 2020 energy research and development. A project coordinated by three Estonian participants has been financed from the Horizon 2020 programme in the field of energy.⁹⁷

⁹⁷ https://edukad.etag.ee

SECTION B: ANALYTICAL BASIS⁹⁸

4. CURRENT SITUATION AND PROJECTIONS WITH EXISTING POLICIES AND MEASURES^{99, 100}

4.1. Projected evolution of main exogenous factors influencing energy system and GHG emission developments

i. Macroeconomic forecasts (GDP and population growth)

The economic growth in Estonia was the fastest of five years in 2017 when the GDP increase by 4.9% compared to 2016. The table below (see Table 16) indicates the projected population data and actual GDP growth rate over the period 2020-2035.

Table 16	Projections	of the	Estonian	nonulation	and GDP
<i>Tuble</i> 10.	Frojections	oj ine	Esionian	роришион	una GDF

Parameter	2020	2025	2030	2035	
Population, one million people	1.2974	1.2760	1.2507	1.2229	
GDP growth, actual growth rate %	3.0	2.5	2.5	2.1	

ii. Sectoral changes expected to impact the energy system and GHG emissions

The more important changes that impact the greenhouse gas emissions over the period 2021-2030 are as follows:

• Changes in the oil shale energy. The operational resource of the old oil shale power plants is exhausting or the environmental restrictions are applied to these that foresee closing of the oil shale blocks. Presumably the major users of the oil shale will be the

⁹⁸ See Part 2 for a detailed list of parameters and variables to be reported in Section B of the Plan.

⁹⁹ Current situation shall reflect the date of submission of the national plan (or latest available date). Existing policies and measures encompass implemented and adopted policies and measures. Adopted policies and measures are those for which an official government decision has been made by the date of submission of the national plan and there is a clear commitment to proceed with implementation. Implemented policies and measures' mean policies and measures for which one or more of the following applies at the date of submission of the national plan or progress report: directly applicable European legislation or national legislation is in force, one or more voluntary agreements have been established, financial resources have been allocated, human resources have been mobilized.

¹⁰⁰ The selection of exogenous factors may be based on the assumptions made in the EU Reference Scenario 2016 or other subsequent policy scenarios for the same variables. Besides, Member States specific results of the EU Reference Scenario 2016 as well as results of subsequent policy scenarios may also be a useful source of information when developing national projections with existing policies and measures and impact assessments.

producers of the shale oil. Transfer to oil producing will reduce the carbon emissions in the oil shale sector;

- Taking the means and types of transport which generate less emissions into use will impact the GHG emissions in the transport sector which is an important GHG emissions source.
- iii. Global energy trends, international fossil fuel prices, EU ETS carbon price.

Global energy trends

This chapter will be prepared in 2019 based on the latest information.

International price of fossil fuels

Estonia uses the European Commission recommended fossil fuel prices in the energy models applied for preparing the projections in this document.

EU ETS carbon price

An average carbon price was 5.76 euros in 2017 and the projected carbon price of 2018 is 11.35 euros. The projected carbon price for 2019 is 11.8 euros. EU ETS carbon price diagram over the period October 2017 to August 2018 (see Figure 11).

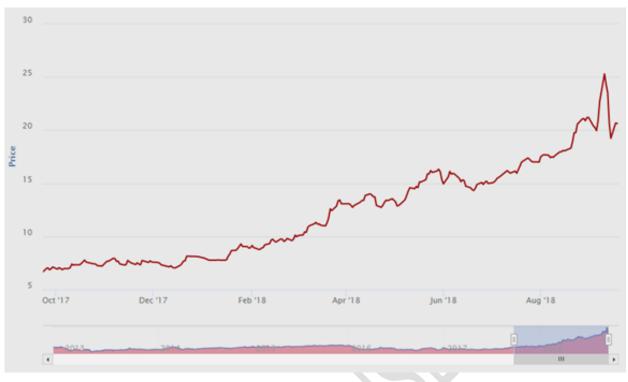


Figure 11. EU ETS carbon price diagram, October 2017 to August 2018. Source: EEX¹⁰¹

Increase in the share of the production capacities that are based on renewable energy sources like wind and biomass can be projected as a general trend in electricity production depending on the depreciation of technologies and price increase in the carbon dioxide quota¹⁰². Based on different sources the projected price of carbon dioxide will be 40 euros by 2030¹⁰³

Estonia uses the European Commission recommended EU ETS carbon price in the energy models applied for preparing the projections in this document.

4.2. Dimension Decarbonisation

4.2.1. GHG emissions and removals

i. Trends in current GHG emissions and removals in the EU ETS, effort sharing and LULUCF sectors and different energy sectors

In 2016, the Estonian summarised GHG emissions was 19,627.04 kt CO₂ eq, except the net emission from the land-use, land-use change and forestry (LULUCF) sector. Over the period 1990–2016, the GHG emissions dropped by 51.4% (see Figure 12). The main reasons for reduction were transfer from the centrally planned economy to the market economy and successful implementation of the related reforms.

¹⁰¹ <u>https://www.eex.com/en/market-data/environmental-markets/spot-market/european-emission-allowances#!/2018/05/09</u>

¹⁰² <u>https://www.mkm.ee/sites/default/files/enmak_2030_koos_elamumajanduse_lisaga.pdf</u>

¹⁰³ <u>https://www.redshawadvisors.com/european-commission-sees-e40-eu-ets-price-by-2030/</u>

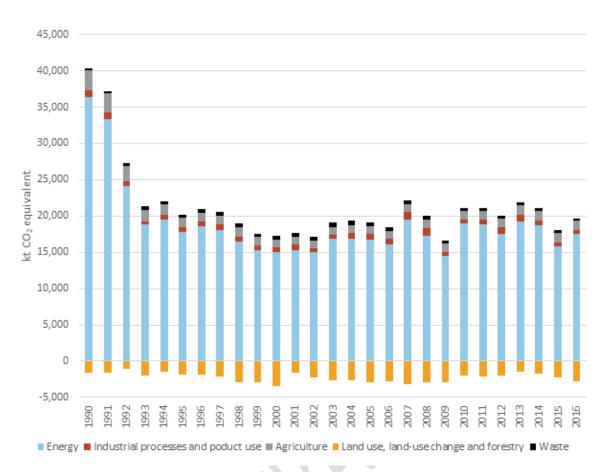
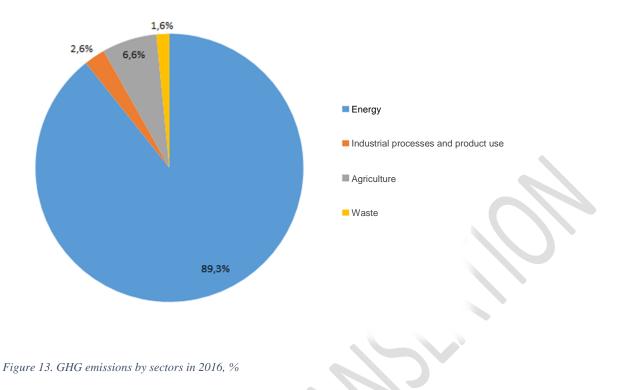


Figure 12. Estonian GHG emissions and their removal by sectors 1990–2016, kt CO2 eq

The energy sector is indisputably the biggest GHG emissions source in Estonia. It formed 89.3% of the summarised Estonian GHG emission in 2016 (see Figure 13). The second biggest emissions source is the agricultural sector that gave 6.6% of the aggregated emissions in 2016. Emission from the industrial processes and product use and waste formed 2.6% and 1.6% of the aggregated emissions, accordingly.

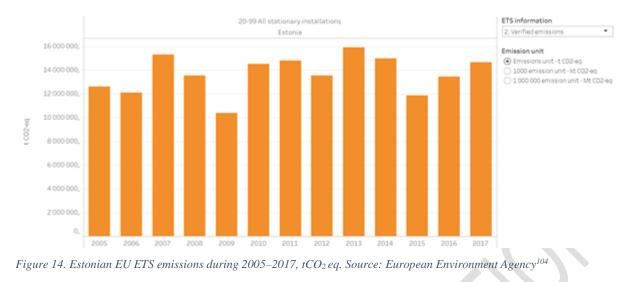
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Greenhouse gas trends in EU ETS

The energy sector is indisputably biggest GHG emissions source in Estonia. It formed 89.3% of the total Estonian GHG emission in 2016. Share of the heat and electricity production emissions belonging to EU ETS in the energy sector from the total emissions was 76.7% in 2016 (see Figure 14).

Energy sector carbon emissions have historically varied mainly in connection with economic trends, energy supply structure and climatic conditions. GHG emissions decreased during 1990-1993 due the big changes in the structure of economy that took place after the fall of the Soviet Union and recovery of the independence of the Republic of Estonia. After that, the energy sector emissions have remained quite stable. In 2003, the emissions were increased mainly due to export of the oil-shale produced electricity. Significant growth of emission during 2006–2007 is related to general economic growth and reduction of emission have been closely linked with the exported electricity volume that is mainly produced from oil shale.



Greenhouse gas trends in the sectors covered with the Shared Effort Regulation

The sector with the biggest greenhouse gas emissions outside the EU ETS was transport sector in 2016. In 2016, the transport sector's share in the energy sector was 13.6% and 12.1% of the total greenhouse gas emissions. Compared to 1990, the emissions in the transport sector have decreased by 6.2%.

Manufacturing and building sector emissions compared to 1990 have decreased by 80.1%.

In 2016, the total GHG emissions of the agricultural sector was 1,295.9 kt CO_2 eq, that is 51.3% lower compared to 1990. Emissions from the enteric fermentation of livestock were 1.6% lower in 2016 when compared to 2015. The emission of the manure management in 2016 dropped by 6.8% compared to the previous year that was caused by the decrease in the number of diary hers and pigs. Production of the dairy industry has decreased from August 2014 due to the economic sanctions imposed on EU by Russia. Hence the number of dairy herds in 2015 was 5.2% lower than in previous year. The number of pigs reared in Estonia dropped by 16% in 2015 due to the African plague that broke out in the region.

The total emissions of the waste sector have been decreasing during last years. In the waste sector, the GHG emissions were lower by 17.2% in 2016 when compared to the reference year (1990).

<u>GHG trends in the LULUCF sector</u>

LULUCF sector as the only possible GHG emissions sink in Estonia has an important role in the national carbon cycle. In 2016, LULUCF was the carbon sink by removing total of 2,724.44 kt CO₂- eq(see Table 17). When compared to the reference year (1990), the carbon removal increased by 76.5% in 2016 and by 20.8% when compared to 2015. The main impacting factors of the LULUCF sector removal were primarily the logging volumes, expanding of populated areas, timber products and emissions from peat soil. The logging volume trends have mainly depended on the socio-economic situation in Estonia.

 $^{^{104} \} https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1\#tab-based-on-data$

Majority of the carbon removal in the LULUCF sector comes from growth of biomass in the sub-categories "forest land remaining forest land" and "land converted to forest land". In 2016, the forest land and the timber products were the only net removals categories.

Sectors	1990	1995	2000	2005	2010	2015	2016	Change %
Energy	36,397.39	17,855.16	14,974.85	16,787.35	18,939.3	15,869.66	17,524.76	-51.9
Industrial processes and product use	965.49	636.60	697.25	726.91	537.3	513.24	500.15	-48.2
Agriculture	2,664.83	1318.12	1070.16	1116.86	1180.28	1343.48	1295.91	-51.4
LULUCF	-1543.75	-1819.02	-3371.16	-2883.73	-1986.52	-2255.74	-2724.44	76.5
Waste	369.9	397.71	562.8	513.89	474.2	322.56	306.23	-17.2
Total (Except LULUFC)	40,397.61	20,207.59	17,305.06	19,145.01	21,131.08	18,048.94	19,627.04	-51.4
Total (Incl LULUFC)	38853.86	18,388.57	13,933.9	16,261.28	19,144.56	15,793.2	16,902.6	-56.5

Table 17. GHG emissions and their removal by sectors in 1990, 1995, 2000, 2005, 2010 and 2015-2016, kt CO₂ eq

ii. Projections of sectoral developments with existing national and Union policies and measures at least until 2040 (including for the year 2030)

Projections of the GHG emissions that at submitted to the European Commission in March 2017 are indicated below. Preparation of new GHG emissions projections are being prepared during completion of the national energy and climate plan and it is planned to finish it in the first quarter of 2019. The final energy and climate plan that is submitted to the European Commission at the end of 2019 will have new and updated GHG emissions projections.

GHG emissions projections are calculated for Projections for 2015–2035 and the reference year (baseline year) was 2014 (see Table 18). For the scenario with submitted emissions (NG), the GHG emissions trends are projected in light of the valid policies and measures. Projections until 2040 will be provided in the final energy and climate plan submitted in 2019.

Sector	2014	2020	2025	2030	2035
Energy	18,691.2	16,607.7	16,186.8	14,233.0	13,619.9
Industrial processes and product use	707.7	1005.0	1013.8	972.5	946.8
Agriculture	1341.9	1468.1	1566.1	1623.6	1678.6
LULUCF	-1754.9	-2139.8	-1921.7	-1703.7	-1485.6
Waste	340.3	251.2	216.7	204.4	185.2
Total (excl LULUCF, incl indirect CO ₂)	21,081.1	19,332.0	18,983.3	17,033.5	16,430.6
Total (incl LULUCF, incl indirect CO ₂)	19,326. 2	17,192.2	17,061.5	15,329.8	14,945.0

Table 18. Projected GHG emissions and their removal by sectors kt CO2-eq

More detailed projections are provided below by sectors.

<u>GHG projections in the energy sector</u>

Energy sector encompasses the GHG emissions from consumption and production of fuels and energy (electricity and heat). This sector mainly includes energy industry, manufacturing and building, transport, other sectors (incl business and public, residential, agricultural, forestry, fishery and fish farming sub-sectors) and diffuse emission from the natural gas distribution system.

Table 19 shows projected emissions of the energy sector in case of NG scenario. According to the projections, the emissions will be reduced by 27.1% by 2035 compared to 2014. The biggest reduction will take place in the energy industry.

According to the projections, the GHG emissions from the energy industry will reduce by 36.7% by 2035 compared to 2014 after iterative closing of direct combustion of oil shale, building more efficient Auvere power plant and commissioning of new oil shale production plants.

It is projected that the GHG emissions of manufacturing and building will increase by 12.3% by 2035 compared to 2014. Transport sector emissions projections are indicated in the following sub-chapter.

	GHG	2014	2020	2025	2030	2035
Energy Industries	CO_2	14,889.9	12,634.8	12,026.0	9,880.4	9,350.0
	CH ₄	0.6	1.3	1.5	1.6	1.6
	N ₂ O	0.1	0.2	0.2	0.2	0.2
	Total CO ₂ eq	14,936.0	12,727.9	12,131.1	9,991.4	9,455.6
Manufacturing industries and construction	CO ₂	698.3	707.4	739.2	771.0	784.9
	CH4	0.1	0.1	0.1	0.1	0.1
	N ₂ O	0.02	0.02	0.02	0.02	0.02
	Total CO ₂ eq	706.0	715.1	747.1	779.1	793.1
Transport	CO ₂	2234.7	2323.8	2448.8	2581.0	2486.4
	CH4	0.2	0.2	0.3	0.4	0.4
	N ₂ O	0.1	0.1	0.1	0.1	0.1
	Total CO ₂ eq	2264.4	2359.3	2489.0	2626.0	2530.4
Other sectors	CO ₂	558.0	564.3	580.3	596.3	601.2
	CH_4	4.9	5.4	5.4	5.3	5.3
	N ₂ O	0.2	0.2	0.2	0.2	0.2
	Total CO ₂ eq	734.1	751.6	769.1	786.5	790.9
Other sources	CO ₂	32.6	26.8	26.8	26.8	26.8
	CH4	0.002	0.001	0.001	0.001	0.001

Table 19. Total emissions of GHG projected in the energy sector, kt

	N ₂ O	0.002	0.001	0.001	0.001	0.001
	Total CO ₂ eq	33.2	27.3	27.3	27.3	27.3
Diffuse emissions	CO ₂	0.03	0.05	0.04	0.04	0.04
	CH_4	0.7	1.1	0.9	0.9	0.9
	Total CO ₂ eq	17.5	26.6	23.3	22.8	22.7
Total energy	CO ₂	18,413.6	16,257.0	15,821.0	13,855.4	13,249.3
	CH_4	6.5	8.1	8.2	8.4	8.3
	N ₂ O	0.4	0.5	0.5	0.6	0.6
	Total CO ₂ eq	18,691.2	16,607.7	16,186.8	14,233.0	13,619.9

GHG projections in the transport sector

Main part of the transport sector GHG emissions come from the road transport. Historically, the share of the road transport GHG emissions has been over 95% of the aggregated transport GHG emissions.

It is expected that the aggregated GHG emissions of the transport sector will increase according to the MG scenario approx 11.7% by 2035 when compared to 2014. In the future, the increase in the road transport and railway transport is projected. The domestic aviation emissions remain stable during 2014-2035 according to estimations. The highest relative increase will be in the railway transport area due to the transfer from the road transport to the railway transport. The emissions from the domestic shipping will be reduced due to smaller fuel consumption according to the projections. Total emissions of GHG projected in the according to the MG scenario (see Table 20).

	GHG	2014	2020	2025	2030	2035
Domestic aviation	CO ₂	1.2	1.2	1.2	1.2	1.2
	CH4	0.00007	0.00007	0.00007	0.00007	0.00007
	N ₂ O	0.00003	0.00003	0.00003	0.00003	0.00003
	Total CO ₂ eq	1.3	1.3	1.3	1.3	1.3
Road transport	CO ₂	2140.6	2215.4	2324.0	2427.2	2333.5
	CH_4	0.2	0.2	0.3	0.4	0.4
	N ₂ O	0.06	0.07	0.07	0.07	0.07
	Total CO ₂ eq	2162.7	2240.7	2352.8	2458.9	2364.2
Railways	CO ₂	61.2	86.5	101.6	129.2	128.6
	CH4	0.003	0.005	0.02	0.06	0.06
	N ₂ O	0.02	0.03	0.04	0.04	0.04
	Total CO ₂ eq	68.4	96.7	113.0	142.6	141.8

Table 20. Total emissions of GHG projected in the transport sector, kt

Domestic shipping	CO ₂	31.7	20.6	21.9	23.3	23.1
	CH_4	0.003	0.001	0.001	0.002	0.002
	N ₂ O	0.0009	0.0002	0.0002	0.0002	0.0002
	Total CO ₂ eq	32.1	20.7	22.0	23.4	23.2
Other modes of transport*	CO ₂	_	_	_	_	_
	CH ₄	_	-	-	-	_
	N ₂ O	-	-	-	-	-
	Total CO ₂ eq	_	_	_	-	
Total transport	CO ₂	2234.7	2323.8	2448.8	2581.0	2486.4
	CH_4	0.2	0.2	0.3	0.4	0.4
	N ₂ O	0.1	0.1	0.1	0.1	0.1
	Total CO ₂ eq	2264.4	2359.3	2489.0	2626.0	2530.4

GHG projections in the industrial processes and product use sector

The already adapted measures in the industrial processes and product use sector are the obligations and the prohibitions established by the Fluorinated Greenhouse Gas regulation (EU) No. 517/2014 and Directive No. 2006/40/EC relating to emissions from air-conditioning systems in motor vehicles. Table 21 shows the projected GHG emissions from the industrial processes and product use sector by sub-categories and GHG types.

The emissions of the fluorinated GHGs (substances for replacing ODS) will decrease significantly after 2025 according to the projections, 51% by 2030 and over 62% by 2035. The reason is Regulation (EU) No. 517/2014 and Directive 2006/40/EC.

Mineral material industry plants hope to recover from the recession to achieve the maximum production capacity by 2025 and maintain that level. Hence, according to the projections, the emissions will increase 1.8 times before 2025 compared to the low level of 2014. All plants already use their best possible technology (BPT) according to the BPT reference documents.

According to the projections, the emissions from the use of fuels and solvents for non-energy purposes will not change almost at all. Consumption of such products depends a lot on the economic situation of small industries and use of solvents remarkably on the size of population. Since only a low economic growth is expected, and the population is not growing, it is projected that these emissions remain almost on an unchanged level.

	GHG	2014	2020	2025	2030	2035
Mineral industry	CO_2	464.5	784.1	837.3	837.3	837.3
Chemical Industry*	CO ₂	-	—	-	-	-
Use of fuels for non-energy purposes and use of solvents	CO ₂	20,5	20,3	20.4	20.3	20.0
	Indirect CO ₂	15.7	14.9	14.6	14.3	14
Using substitutes for ozone-	HFCs	0.1	0.1	0.1	0.08	0.07

Table 21. Total emissions of GHG projected in the industrial processes and product use sector, kt

depleting substances						
	Total CO ₂ eq	217.5	194.7	150.0	108.7	83.5
Other product manufacture and use	SF ₆ kt x 10 ⁻³	0.09	0.1	0.1	0.1	0.1
	N ₂ O	0.01	0.01	0.01	0.01	0.01
	Total CO ₂ eq	5.3	6.0	6.0	6.1	6.1
Total industrial processes	CO ₂ (incl indirect CO ₂)	484.9	804.3	857.7	857.7	857.3
	Indirect CO ₂	15.7	14.9	14.6	14.3	14.0
	HFC	0.1	0.1	0.1	0.08	0.07
	N ₂ O	0.01	0.01	0.01	0.01	0.01
	Total CO ₂ eq	707.7	1005.0	1013.8	972.5	946.8

GHG projections in the agricultural sector

According to the projections, the aggregated GHG emissions of the agricultural sector will grow continuously and reach 1,679 kt CO_2 eq by 2035 which means a 25% increase of the 2014 level (see Table 22). The GHG growth trend of the agricultural sector comes from the increase in the number of animals and increasing diary production of dairy herd in the enteric fermentation, manure management and arable land sub-sector. The reason for the increased emission emitted from the agricultural land is the projected use of the synthetic and lime fertilisers.

	GHG	2014	2020	2025	2030	2035
Enteric fermentation	CH4	22.4	23.7	25.8	27.0	28.2
	Total CO ₂ eq	560.3	592.0	643.9	674.4	705.3
Manure management	CH ₄	3.4	3.4	3.7	3.8	3.9
	N ₂ O	0.2	0.3	0.3	0.3	0.3
	Total CO ₂ eq	150.0	162.3	174.8	183.0	188.9
Agricultural areas	N ₂ O	2.1	2.3	2.4	2.5	2.5
	Total CO ₂ eq	620.9	698.2	727.4	741.7	755.6
Liming	CO ₂	8.3	12.7	17.1	21.5	25.9
	Total CO ₂ eq	8.3	12.7	17.1	21.5	25.9
Urea application	CO ₂	2.5	3.0	3.0	3.0	3.0
	Total CO ₂ eq	2.5	3.0	3.0	3.0	3.0
Total agriculture	CO ₂	10.8	15.6	20.0	24.4	28.8
	CH_4	25.8	27.1	29.4	30.8	32.2
	N ₂ O	2.3	2.6	2.7	2.8	2.8
	Total CO ₂ eq	1341.9	1468.1	1566.1	1623.6	1678.6

Table 22. Total emissions of GHG projected in the agricultural sector, kt

GHG projections in the waste sector

According to the projections, the emissions in CO_2 eq will decrease by 46% by 2035 when compared to 2014 (see Table 23). Reduction of emissions is mainly related to the increase in taking waste to reuse and recycling, decreased amounts of landfilled biodegradable waste and the waste incineration in the Iru cogeneration station since the emissions mainly occur from landfilling solid waste. Increase in the GHG emissions from biological processing of solid waste is related to the decrease in the total volume of the landfilled biodegradable waste. Reduction of emissions from the wastewater treatment is related to the expanding sewerage network.

	GHG	2014	2020	2025	2030	2035
Solid waste disposal	CH ₄	8.0	4.4	2.9	2.3	1.4
	Total CO ₂ eq	201.1	110.3	73.0	57.9	35.0
Biological treatment of solid waste	CH_4	0.5	1.0	1.1	1.3	1.4
	N_2O	0.03	0.06	0.07	0.08	0.08
	Total CO ₂ eq	22.0	44.0	48.9	54.1	59.4
Incineration and open burning of waste*	CO ₂	1.0	1.0	0.5	_	—
	CH_4	0.02	0.01	0.01	_	_
	N ₂ O	0.0003	0.0002	0.000 1	_	_
	Total CO ₂ eq	1.5	1.4	0.7	_	—
Waste water treatment	CH ₄	2.5	2.2	2.2	2.1	2.1
	N ₂ O	0.1	0.1	0.1	0.1	0.1
	Total CO ₂ eq	91.7	84.5	83.1	81.4	79.8
Other (incineration of biogas in flame)	CH ₄	0.9	0.4	0.4	0.4	0.4
	N_2O	0.004	0.002	0.002	0.002	0.002
	Total CO ₂ eq	24.0	11.0	11.0	11.0	11.0
Total waste*	CO_2	1.0	1.0	0.5	_	_
	CH_4	12.0	8.1	6.6	6.1	5.3
	N ₂ O	0.1	0.2	0.2	0.2	0.2
	Total CO ₂ eq	340.3	251.2	216.7	204.4	185.2

Table 23. Total emissions of GHG projected in the waste sector, kt

*GHG emissions are not emitted in the indicated sub-categories over the period 2030-2035.

GHG projections in the LULUCF sector

The forest area has been ongoingly increasing until 2015. Since there are several EU support plans for the agricultural activities, only a small growth is foreseen for the forest land in the future (mainly by converting grasslands into forest lands). Further growth of the agricultural land is not projected. The area grasslands should still decrease in the near future mainly due to natural afforestation. The area of the infrastructure and populated area is ongoingly expanding on account of other land use classes. The National Forestry Development Plan until 2020 projects the further growth of regeneration cutting, cleaning and thinning. The described management method brings along the temporary decrease in carbon removal. According to the projections, the LULUCF sector will remain the carbon remover (see Table 24)

	GHG	2014	2020	2025	2030	2035
Wooded area	CO ₂	-2183.5	-2067.9	-1660.3	-1252.8	-845.3
	CH ₄	0.002	0.013	0.008	0.002	-0.003
	N ₂ O	0.00001	0.0001	0.00008	0.00002	-0.00003
	Total CO ₂ eq	-2183.4	-2067.5	-1660.1	-1252.8	-845.4
Arable land	CO ₂	133.4	147.0	174.3	201.5	228.7
	N ₂ O	0.02	0.03	0.04	0.05	0.05
	Total CO ₂ eq	138.8	155.8	185.5	215.1	244.8
Grassland	CO ₂	6.7	33.1	28.6	24.1	19.6
	CH ₄	0.00003	0.001	0.001	0.001	0.001
	N ₂ O	0.000003	0.00008	0.00008	0.00009	0.00009
	Total CO ₂ eq	6.7	33.1	28.6	24.1	19.6
Wetlands	CO ₂	905.7	755.2	715.8	676.3	636.8
	CH4	0.002	0.002	0.002	0.002	0.002
	N ₂ O	0.004	0.004	0.004	0.004	0.003
	Total CO ₂ eq	907.0	756.4	716.9	677.4	637.8
Housing areas	CO ₂	235.1	254.2	294.4	334.5	374.6
Other land	CO ₂	23.4	6.5	-10.3	-27.2	-44.1
Harvested wood products	CO ₂	-882.6	-1278.4	-1476.6	-1674.8	-1873.0
Other*	N ₂ O	0.00006	_	_	_	_
LULUCF Total	CO ₂	-1761.7	-2150.2	-1934.4	-1718.6	-1502.7
	CH ₄	0.004	0.016	0.011	0.005	-0.0000
	N ₂ O	0.02	0.03	0.04	0.05	0.06
	Total CO2 eq	-1754.9	-2139.8	-1921.7	-1703.7	-1485.6

Table 24. Total emissions of GHG projected in the LULUCF sector, kt

4.2.2. Renewables

i. Current share of renewable energy in gross final energy consumption and in different sectors (heating and cooling, electricity and transport) as well as per technology in each of these sectors.

State of play

According to the Eurostat SHARES model, the share of the renewables was 28.8% from gross energy consumption in 2016, incl 15.5% from the gross electricity consumption, 51.2% from gross heat consumption and 0.41% from the gross transport sector consumption.

As of November 2018, the calculated share of the Estonian transport sector totalled to 4.85% of which 3.1% is formed by the first generation biofuels (does not contain multipliers), 1.35% of the second generation biofuels or the domestic biomethane (contains multipliers) and 0.4% is formed by the electromobility (contains multipliers).

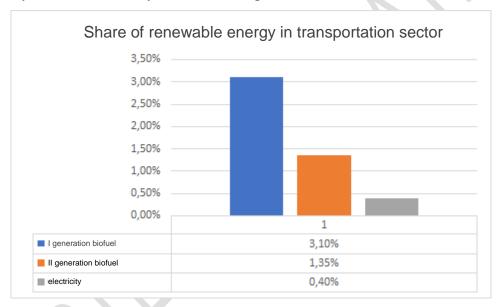


Figure 15. Share of renewable energy in transportation sector in November 2018

Projections for the future

Estonia has assessed the achievement of the overall target by 2020 in detail. According to that, the share of renewables on the gross energy consumption will form 31.3% in 2020^{105} . Shares of renewables by sectors are as follows:

- 17.4% of energy consumption;
- 54.9% of heat and cooling consumption;
- 10% of transport use.

By 2030, Estonian gross energy consumption will increase 10..16%, i.e. 0.85..0.88% a year. Hence the gross final energy consumption will increase to the level of 41..43 TWh by 2030.

¹⁰⁵ Calculations of this share consider the agreed statistical transfers in renewable energy trade.

Considering the ESDP 2030 renewable energy targets (to achieve the renewable energy share of 80% for gross heat consumption, 50% of gross electricity consumption on condition that the statistical transfers in the renewable energy trade are used), the new Renewable Energy Directive that determines the share of renewables in the transport fuels and at the same time the possible interest towards the statistical transfers in the renewable energy, the share of the renewable energy may be over 50% in the final gross energy consumption. The domestic renewable energy target reflects the ESDP 2030 ambitions but also considers the fair contribution of Estonia into meeting the EU renewable energy overall target.

ii. Projections of sectoral developments with existing national and Union policies and measures at least until 2040 (including for the year 2030)

This chapter will be prepared in 2019.

4.3. Dimension Energy efficiency

i. Current primary and final energy consumption in the economy and per sector (including industry, residential, service and transport)

According to the Eurostat data, the consumption of primary energy in Estonia formed 257 PJ (71.3 TWh) and final energy consumption 118 PJ (32.8 TWh) in 2016. The figure below describes the final consumption structure (see Figure 16).

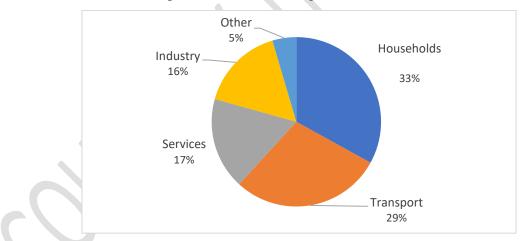


Figure 16. Structure of final energy consumption in Estonia in 2016 [Eurostat nrg_100a]

Compared to 2004, when Estonia joined the European Union, the energy consumption has grown most in the services sector (30%), energy consumption of transport has grown 12%. Energy consumption in the households has not changed compared to 2004, the industrial energy consumption has decrease 34%.

ii. Current potential¹⁰⁶ for the application of high-efficiency cogeneration and efficient district heating and cooling.

According to the sub-measure 4 of ESDP 2030 measure 1.1, the Estonia's target is to produce the heat by 75 MW more than in 2014 to the district heating network in the cogeneration mode. The second production equipment of the Tallinn Power Plant started operating in 2017 with the heat capacity of 76 MW. In the nearest future, the efficient cogeneration plant with the projected capacity of 25 MW will be added in Tallinn.

The district cooling sector has not yet been established in Estonia. District heating pilot project has been started in Tartu.

iii. Projections considering existing energy efficiency policies, measures and programmes as described in point 1.2.(ii)¹⁰⁷ for primary and final energy consumption for each sector at least until 2040 (including for the year 2030)

This chapter will be prepared in 2019.

iv. Cost-optimal levels of minimum energy performance requirements resulting from national calculations, according to Article 5 of Directive 2010/31/EU.

The cost-optimal levels of energy efficiency minimum requirements have been found out in the research "Analysis of the cost-optimal energy efficiency minimum requirements of buildings" completed in 2107 on order of the Ministry of Economic Affairs and Communications.¹⁰⁸. The results are summarised in the following table (see Table 25). The analysis of the table should also consider the weighing factors of the energy carriers of which the most important ones are the weighing factor 0.75 for the renewable raw material-based fuels; 0.9 for district heating, 1.0 for natural gas and 2.0 for electricity.

Table 25. Cost-optimal and actual energy efficiency weighing energy use requirements for new and existing buildings; unit: $kWh/(m^2 \cdot year)$

	New bui	lding	Existing building		
Building type	Cost-optimal level	Requirement, 2017	Cost-optimal level	Requirement, 2017	
Small residential buildings	87	160	250	210	
Apartment blocks	103	150	130	180	
Office buildings	93	160	160	210	

¹⁰⁶ In accordance with Article 14(1) of Directive 2012/27/EU.

¹⁰⁷ This reference business as usual projection shall be the basis for the 2030 final and primary energy consumption target which is described in 2.3 and conversion factors.

¹⁰⁸ <u>https://www.mkm.ee/sites/default/files/kuluoptimaalsuse_aruanne_20171128_uus.pdf</u>

4.4. Dimension energy security

i. Current energy mix, domestic energy resources, import dependency, including relevant risks

The following figure characterises the structure of Estonian primary energy consumption in 2016 by fuels (see Figure 17).

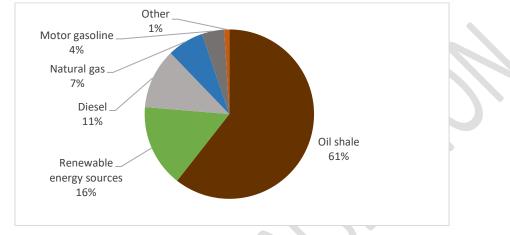


Figure 17. Primary energy sources used in Estonia in 2016 [Eurostat nrg_110a]

Vast majority of the Estonian primary energy need is satisfied by the means of domestic energy sources. Thanks to the oil shale, renewable energy sources and peat, The dependence of Estonia on energy carriers is the smallest in the EU by forming 6.8% in 2016¹⁰⁹. Despite the good general picture, all consumed liquid motor fuels and also natural gas is imported. The risks are higher for the natural gas in fuel deliveries where the major part of the consumed gas is imported from Russia in the whole region. Import options for liquid fuels are more diverse.

ii. Projections of development with existing policies and measures at least until 2040 (including for the year 2030)

This chapter will be compiled in 2019 after publishing the GHG emissions projections.

- 4.5. Dimension Internal energy market
- 4.5.1. Electricity interconnectivity

i. Current interconnection level and main interconnectors¹¹⁰.

In 2017, the interconnectivity of the Estonian electricity grids with the neighbouring countries (Latvia, Finland) was $63\%^{28}$. The interconnection capacity from EE to LV was 900 MW, and

¹⁰⁹ Eurostat t2020_rd320,

https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=t2020_rd320

¹¹⁰ With reference to overviews of existing transmission infrastructure by TSOs.

1016 from EE to FI. Two 330 kV lines interconnect Estonia with the Latvian electricity system (one is between Tartu and Valmiera, the other is between Tsirguliina and Valmiera). Two DC cable lines interconnect Finland and Estonia (EstLink 1 and EstLink 2). The peak capacity of interconnection towards Latvia was 816 MVA and towards Finland it was 1048 MVA according to the data of 2017. Depending on the repair works in the electricity network and external air temperature, the transmission capacity between Estonia and Latvia may change.

The existing electricity transmission infrastructure is described in the following annual analysis:

- 1. Elering AS. Security of supply report of the Estonian electricity system. <u>https://elering.ee/toimetised#tab0</u>
- 2. The Competition Authority. Report on the electricity and gas market in Estonia. http://www.konkurentsiamet.ee/index.php?id=23346

ii. Projections of interconnector expansion requirements (including for the year 2030)¹¹¹

It is estimated that the capacity from EE to LV will increase to 1379 MW by 2030¹¹² based on finishing the third Estonia-Latvia interconnection¹¹³. The long-term development plan (TYNDP 2018¹¹⁴) of ENTSO-E has estimated that in 2030, Estonia will perform all three criteria above in case of all analysed scenarios (Figure 3).

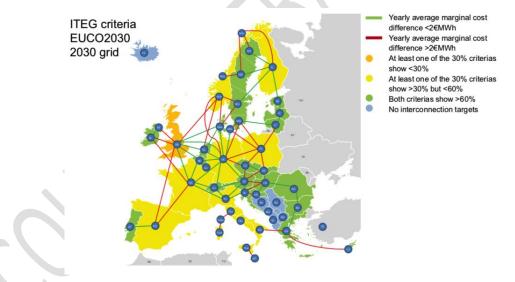


Figure 18. Performance of the electricity interconnection criteria in 2030 in respect of EUCO 2030 scenario^{31, 115}

¹¹¹ With reference to national network development plans and regional investment plans of TSOs.

¹¹² ENTSO-E. TYNDP 2018. Input data. <u>https://tyndp.entsoe.eu/maps-data/</u>

¹¹³ Elering AS: <u>https://elering.ee/eesti-lati-kolmas-uhendus</u>

¹¹⁴ ENTSO-E. TYNDP 2018. Europe's Network Development Plan to 2025, 2030 and 2040. https://tyndp.entsoe.eu/tyndp2018/

¹¹⁵ EUCO 2030 scenario = Scenario for meeting the EU-wide energy and climate objectives agreed in 2014.

Although Estonia and other Baltic States perform the three criteria of the electricity connectivity, the networks of the Baltic States have not been fully interconnected to the EU electricity grids. Namely, the Baltic States are not located in the synchronous area subject to EU law. Estonian, Latvian and Lithuanian electricity systems are operating synchronously with the Russian Unified Energy System (IPS/UPS). Synchronisation of the electrical system of the Baltic States to the synchronous area subject to the EU law around 2025 is one of the most important energy policy targets for Estonia and other Baltic States and affects significantly the long-term development of the electricity network. The Prime Ministers of the Baltic States, the President of the European Commission and the Prime Minister of Poland confirmed in the roadmap¹¹⁶ that was signed in the summer of 2018 the importance of the Synchronisation project and recognised the wish of the Baltic States to synchronise to the Continental Europe mains frequency. The interconnections between the Baltic States will also be strengthened within the framework of the synchronisation project and the project contributes to the increase in the electricity interconnection of Poland¹¹⁷.

4.5.2. Energy transmission infrastructure

i. Key characteristics of the existing transmission infrastructure for electricity and gas¹¹⁸

In Estonia there is one company providing the transmission system services (Elering AS), who is also the system operator. There are total of 5,403 km of the transmission lines (110 kV...330 kV) belonging to the TSO.¹¹⁹

Estonian electricity system belongs to the big synchronously operating Union for the Coordination of Transmission of Electricity BRELL (Figure 19) formed by the neighbouring countries Latvia and Russia connected via the AC lines and in turn their neighbours Lithuania and Belarus. Estonia is connected to Russia with three 330 kV lines (two lines from Narva to St. Petersburg and Kingisepp and one line from Tartu to Pskov), two 330 kV lines interconnect Estonia with the Latvian electricity system (one is between Tartu and Valmiera, the other is between Tsirguliina and Valmiera). Two DC cable lines interconnect Finland and Estonia (EstLink 1 and EstLink 2).(Figure 20).¹¹⁹

https://ec.europa.eu/energy/sites/ener/files/documents/c_2018_4050_en_annexe_acte_autonome_nlw2_p_v2.docx

¹¹⁶ Political Roadmap on the synchronisation of the Baltic States' electricity networks with the Continental European Network via Poland.

¹¹⁷ ENTSO-E. Project 170 – Baltics synchro with CE. Interconnection targets. <u>https://tyndp.entsoe.eu/tyndp2018/projects/projects/170</u>

¹¹⁸ With reference to overviews of existing transmission infrastructure by TSOs.

¹¹⁹ The Competition Authority. Report on the electricity and gas market in Estonia, 2017. <u>http://www.konkurentsiamet.ee/index.php?id=23346</u>



Figure 19. Electricity system map of the Baltic States and the north-west part of Russia¹¹⁹

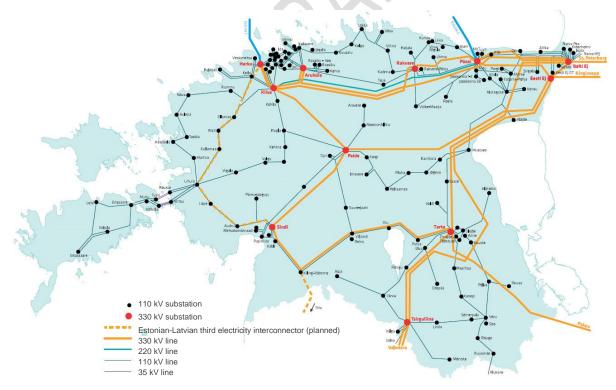


Figure 20. Estonian electricity system map¹²⁰

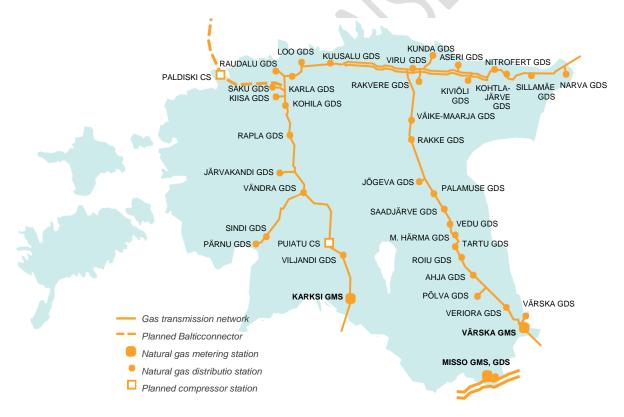
¹²⁰ Elering AS. Estonian transmission system map. https://elering.ee/elektri-pohivorgu-kaart

According to the data of 2017, the peak capacity of the interconnection from Narva to Russia was 613 MVA (if the electricity trading is not going on between Estonia and Latvia), peak capacity of interconnection from the South Estonia towards Russia was 391 MVA, and towards Latvia it was 816 MVA and towards Finland the peak capacity of interconnection was 1048 MVA. Depending on the repair works in the electricity network and external air temperature, the transmission capacity between Estonia and Latvia may change.

The existing electricity transmission infrastructure is described in the following annual analysis:

- 1. Elering AS. Security of supply report of the Estonian electricity system. https://elering.ee/toimetised#tab0
- 2. The Competition Authority. Report on the electricity and gas market in Estonia. http://www.konkurentsiamet.ee/index.php?id=23346

According to the Natural Gas Act, the Estonian gas transmission system has one transmission operator who is also a system operator. The gas transmission system and the electricity system have the same system operator - Elering AS. Estonian gas transmission system is a dead-end system - gas is entered from three inlets but the two-way gas flows cannot be performed from Estonia (figure 11).



*Figure 11. Estonian gas transmission system map*¹²¹

Estonian gas transmission system is interconnected with Latvia and Russia. Interconnection to Latvia goes through Karksi (7 million m³ a day), to Russia through Narva (3 million m³ a day)

¹²¹ Elering web - <u>https://elering.ee/gaasisusteem</u>

and Värska (4 million ³ a day). The aggregate interconnection capacity is hence 14 million m³ a day. Estonian gas transmission system does not have any gas storages, liquefied gas terminals or compressor stations. The highest natural gas consumption of last 20 years was 6.7 million m³ (19 January 2006). Hence the gas transmission system's N-1 criterion is 104.5% or the security of supply of the system is technically ensured. The Estonian gas transmission network comprises 885 km of gas pipeline, three gas-metering stations and 36 gas distribution stations. The list of gas transmission system pipelines is provided in the table below (see Table 26).

The minimum transmission capacity of the gas transmission system in the indicated points is $7 \text{ million } m^3 \text{ a day.}$

Pipelines	Length, km	Nominal- diametre (DN), mm	Maximum operating pressure (MOP), barg	Age, years
Vireši - Tallinn	202.4	700	49.6	26
Vändra – Pärnu	50.2	250	54	12
Tallinn - Kohtla-Järve I	97.5	200	\leq 30	65
Tallinn - Kohtla-Järve II	149.1	500	\leq 30	50
Kohtla-Järve - Narva	45.1	350 / 400	\leq 30	58
Irboska - Värska GMS	10.1	500	53.7	43
Värska GMS - Tartu	75.6	500	45.9	43
Tartu - Rakvere	133.2	500	45.2	39
Irboska - Inčukalns	21.3	700	49.2	34
Pihkva - Riga	21.3	700	51.4	46
Branch piping	79.2			
Total	885.0			

Table 26. The Estonian gas system pipeline. The table shows the length of the pipelines. ¹²²

The Estonian gas transmission system is also interconnected with the Lithuanian gas transmission system via Latvia (see Figure 21).

¹²² Estonian gas transmission system development plan 2018-2027

https://elering.ee/sites/default/files/attachments/Eesti%20gaasi%C3%BClekandev%C3%B5rgu%20arengukava %202018-2027_t%C3%A4iendatud_16_05_2018.pdf



Figure 21. Estonian gas transmission system map¹²²

The peak loads of the gas transmission system are indicated in the figure below (see Figure 22).

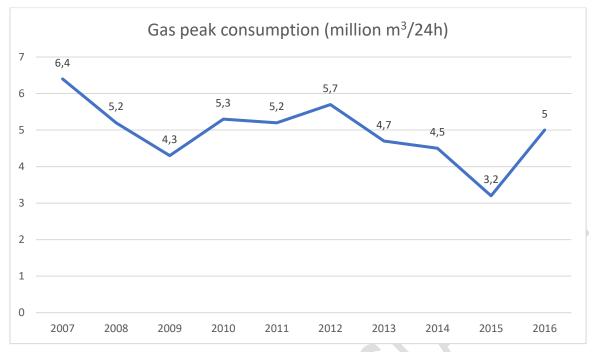


Figure 22. Peak consumption of the gas transmission system 2007-2016¹²³

Estonian gas transmission system development plan prepared by the system operator is available here

https://elering.ee/sites/default/files/attachments/Eesti%20gaasi%C3%BClekandev%C3%B5rg u%20arengukava%202018-2027_t%C3%A4iendatud_16_05_2018.pdf

The Competition Authority prepares annually an overview of functioning of the gas market to the European Commission. The report can be found here - <u>http://www.konkurentsiamet.ee/file.php?29091</u>.

ii. Projections of network expansion requirements at least until 2040 (including for the year 2030)¹²⁴.

Electrical system

The activity of the Estonian electricity TSO (Elering AS) in keeping the Estonian electrical system operational and making necessary investments for enduring the security of supply comes directly from the Electricity Market Act, Network Code and the electricity and energy sector development plans.

Elering's investments are based on the following targets:

- 1) Supporting the security of supply;
- 2) Supporting electricity market development (external interconnections);
- 3) Supporting transmission capacities to enable new connections and growth of loads;
- 4) Suspending the ageing of the network;
- 5) Improvement of the reliability (voltage quality and interruptions);
- 6) Enhancement of the operator's efficiency, reducing losses;
- 7) Connections of new customers (consumers, producers).

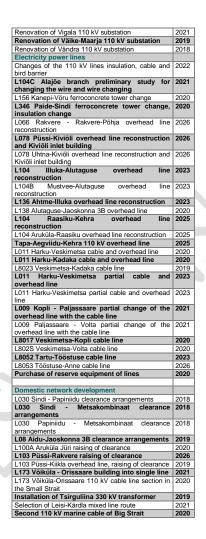
¹²³ Source – Elering AS

¹²⁴ With reference to national network development plans and regional investment plans of TSOs.

The investments are generally approved for up to five years in advance (except the Projects of common interest). 33% of the period 2018-2022 investment volume goes to renovation of the amortised network and 67% to development of the domestic network. ~22% of investments are made to the sub-stations and ~78% to the power lines. Investments related to synchronisation of the electrical system of the Baltic States are planned until 2025 (Figure 23).⁷⁸

APPENDIX 6. NETWORK INVESTMENTS

Substations	0000
Tap changers of 110 kV transformers	2023 2022
Change of 110-330 kV power transformers Bushings of 110-330 kV transformers	2022
330 kV substation 0T diesel generator installations	2023
Accumulator batteries and charging equipment	2020
Partial renovation of substations	2022
Purchase of reserve equipment of substations	2022
Purchasing the service plot for substations	2018
Changing RTUs in substations	2018
Renovation of Aidu 110kV substation	2020
Renovation of Alutaguse 110 kV substation	2020
Renovation of Audru 110 kV substation	2022
Renovation of Ellamaa (Riisipere) 110 kV	2020
substation	
Renovation of Elva 110 kV substation	2023
Renovation of Haapsalu 110 kV substation	2022
Reconstruction of Haljala substation into compact	2023
substation	
Renovation of eastern 110 kV substation	2018
Renovation of Järvakandi 110 kV substation	2021
Renovation of Kanepi 110 kV substation	2020
Renovation of Kantküla 110kV substation into	2021
compact substation	
Renovation of Kehtna 110kV substation into	2022
compact substation	2019
Renovation of Koigi 110 kV substation	2019
Renovation of Konsu 110 kV substation Renovation of Kopli 110 kV substation	2022
Renovation of Kopil 110 kV substation	2018
Renovation of Kuuste 110 kV substation	2018
Renovation of Laagri (Pääsküla) 110 kV	2023
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Modernisation of the Estonian control 2025 systems of the electrical syste Other investments with cross-border impact Improvements to emergency reserve powe 2019 EstLink1 improven 2019 EstLink2 improvements Sindi A2T and reactors 2019 2019

Figure 23. Elering AS investment plans to the Estonian transmission system⁷⁸

Gas transmission system

4.5.3. Electricity and gas markets, energy prices

i. Current situation of electricity and gas markets, including energy prices

The power exchange Nord Pool AS (NP) started its activities in Estonia in April 2010. The electricity market was open to the extent of 28.4% in 2010. From 01 January 2013, the electricity market opened to everyone or all electricity consumers with the valid network contract can choose the electricity provider and the price package suitable for them.¹¹⁹

Thanks to the interconnection between Estonia and Finland *EstLink 1* and *EstLink 2* and between Lithuania and Sweden *NordBalt*, the electrical system of the Baltic States is strongly integrated to the electrical system of the Nordic countries (Norway, Sweden, Finland, Denmark) where the Nord Pool power exchange is also operating.¹¹⁹

Estonia produced electricity in the amount of 11.2 TWh (net production) in 2017 and compared to 2016, the electricity production increased by 7.8% (Table 27). 2.1 TWh of electricity was imported to Estonia in 2017 and compared to 2016, the import decreased by 41%. Electricity consumption in 2017 was 7.87 TWh and compared to 2016 the consumption increased by 2.6%. 4.77 TWh of electricity was exported from Estonia in 2017 which is 15% less than in 2016. The network losses in the Estonian transmission system in 2016 and 2017 were substantially the same (0.7 TWh).119

Table 27. Electricity balance, GWh¹¹⁹

Electricity balance, GWh	2016	2017	Change, %
Production (net)	10,424	11,234	7.8
Import	3,577	2,109	-41.0
Consumption	7,664	7,865	2.6
Loss	723	717	-0.8
Export	5,614	4,765	-15.1
*			

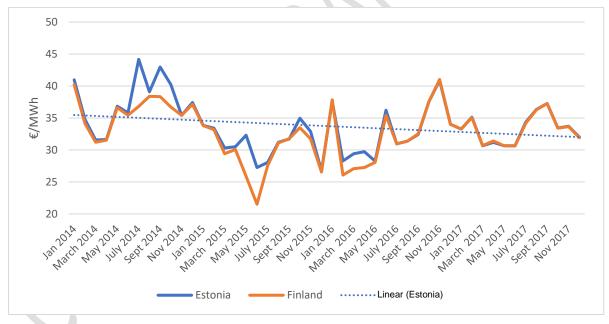


Figure 24. Comparison of prices in the NP Estonia and NP Finland price areas¹³⁰

The figure above (Figure 24) shows that the Estonian and Finnish electricity prices were quite similar after the commissioning of *EstLink 2* in December 2013. The differences in prices between Estonia and Finland have been caused mainly by interruptions in *EstLink 1* and *EstLink 2*, when the transmission capacity between Estonia and Finland have decreased In 2017 there were no significant interruptions in the work of *EstLink 1* and *EstLink 2*.¹¹⁹

Table 28	Price	comparison	in NP	electricity	$exchange^{130}$
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Price area	Unit	Average price 2016	Average price 2017	Maximum price 2017	Minimum price 2017	Change, %
NP System	€/MWh	26.91	29.41	127.32	5.00	8.5
NP Finland	€/MWh	32.45	33.19	130.05	2.99	2.2
NP Estonia	€/MWh	33.06	33.20	130.05	2.99	0.4
NP Latvia	€/MWh	36.09	34.68	130.05	2.99	-4.1
NP Lithuania	€/MWh	36.54	35.13	130.05	2.99	-4.0

The table above (Table 28) shows that an average price of the NP Estonia price areas was 33.20 €/MWh in 2017 which is 2.2% higher compared to the price in 2016. The average prices increased the same way in the NP System and the NP Finland price area. The average prices dropped in the NP Latvia and NP Lithuania price area. The price drop was mainly caused by the new Lithuanian and Poland (*LitPol Link*) and Lithuania-Sweden (*NordBalt*) interconnectors. In 2017, the highest hourly price in the NP Estonia was 130.05 €/MWh and the lowest was 2.99 €/MWh.¹¹⁹ By the middle of 2018, the maximum price in the NP Estonia price area had reached 255 €/MWh (February 2018). The average price of the first half of 2018 was 42 €/MWh¹³⁰.

Table 29. Quantities traded in the day-ahead market in the NP Estonia price area^{119 125}

Traded quantities in the NP Estonia price area	Unit	2016	2017	Change, %
Quantity of electricity sold in the day-ahead (Elspot) market in the NP Estonia price area	TWh	9.49	10.15	7.0
Quantity of electricity purchased in the day- ahead (Elspot) market in the NP Estonia price area	TWh	7.5	7.38	-1.5

Electricity quantities sold in the day-ahead (Elspot) market were total of 10.15 TWh in 2017 (Table 29), which were 7% higher than the quantities sold in 2016 and the purchased quantities totalled to 7.38 TWh.

Table 30. Quantifies traded in the intra-day market in the NP Estonia price area¹¹⁹

Traded quantities in the NP Estonia price area	Unit	2016	2017	Change, %
Quantity of electricity sold in the intra-day (Elbas) market in NP Estonia price area	GWh	72	90	25.0
Quantity of electricity purchased in the intra-day (Elbas) market in NP Estonia price area	GWh	145	204	40.7

¹²⁵ Nord Pool AS. Market data. <u>https://www.nordpoolgroup.com/Market-data1/#/nordic/table</u>

Electricity quantities sold in the intra-day (Elbas) market were total of 0.09 TWh in 2017 (Table 30), which were 25% higher than the quantities sold in 2016 and the purchased quantities totalled to 0.2 TWh.

All consumers with the valid grid contract can select the suitable electricity seller. Eesti Energia AS (Table 31) has the biggest market share in the retail market.

				Market s	hare of three bigg	gest sellers
Year	Total consumption (w/o losses) GWh	Number of undertakings whose market share exceeds 5%	Number of independent electricity sellers	Big and very big industrial undertakings	Medium-size and small industrial undertakings	Small enterprises and home consumers
2010	7431	1	4	100	94	94
2011	6845	1	5	100	93	93
2012	7407	1	5	100	93	93
2013	7332	2	15	100	90	85
2014	7,417	2	16	100	90	85
2015	7,440	5	16	100	90	85
2016	7,664	4	17	100	90	85
2017	7,865	5	16	100	90	85

Table 31. General data on the electricity retail market¹¹⁹

There were 16 independent electricity traders in Estonia in 2017 of who 10 undertakers are operating actively in the market. The rate of changing the electricity trader by consumers was 3% in 2017. 84% of consumers have power contracts and 16% of consumers use general service (consumers who do not have a valid power contract). The average share of balancing portfolio of the biggest wholesale electricity trader (Eesti Energia AS) in 2017 was 59.5%, followed by Elektrum Eesti OÜ with 10,6% and Scener OÜ by 9.6%. The average share of the balancing portfolio of Eesti Energia was 71.9% in 2013 and compared to 2017, the market share of the biggest Estonian electricity trader (Eesti Energia AS) has decreased. Hence it can be concluded that the competition among the electricity traders have increased in the electricity market.¹¹⁹

Estonian gas market is opened from 2007. From 2015, the independent system manager of the Estonian gas system is Elering AS. In the nature, the Estonian gas system is a deadlock system by receiving the natural gas from Russia and Lithuania (regasified LNG). Figure 25 Gives an overview of the origin of the imported natural gas in 2016. Share of natural gas import was 93% in 2016.

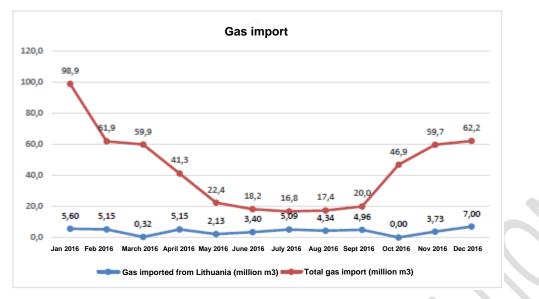


Figure 25. Origin of imported gas in 2016

From the beginning of July 2017, the Estonian gas exchange was started and it is possible to trade with natural gas between the Baltic States independent of the country of selling or purchasing. UAB GET Baltic manages the gas market covering the Baltic States. Establishment of the single gas market became possible due to the agreement of the system operators of the three countries to apply the implicit auction to distribution of the cross-border transmission capacities where the gas price contains also the transmission capacity in the cross-border transactions. For example, the Estonian market participant can buy gas from Lithuania without organising the gas transport from Lithuania to Latvia and from there to Estonia. Although 1.36 GWh of gas was purchased via the gas exchange in 2017, the use of the gas exchange is increasing.

The sales volume of the Estonian gas market and the daily peak load has been continuously decreasing during last 10 years (see Figure 26).

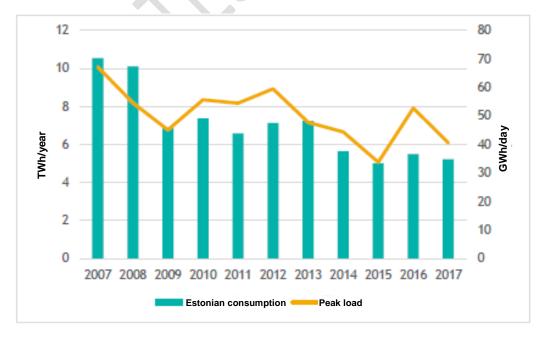


Figure 26. Gas consumption quantities and peak load, TWh/year, GWh/day (2007-2017)

Depending on the sales volume, in 2017, the final gas price for the household consumers was within the range of 25.79 \notin /MWh - 35.26 \notin /MWh (see Table 33), for business consumers it was 8.22 \notin /MWh - 11.69 \notin /MWh (see Table 32).

Table 32. Final gas price for the business consumer in 2017

2017, €/MWh	Consumpt ion < 0.28 GWh	Consumptio n 0.28-2.8 GWh	Consumpti on 2.8-27.8 GWh	Consumption 27.8-277.8 GWh	Consumption 277.8 - 1111.1 GWh
1 January – 30 June 2017	35.26	31.45	27.63	27.63	26.68
1 July - 31 December 2017	29.61	28.65	27.70	25.79	26.74

Table 33. Final gas price for the household consumer in 2017

2017, €/MWh	Consumption < 5.56 MWh	Consumption 5.56-55.6 MWh	Consumption > 55,6 MWh
1 January – 30 June 2017	42.08	34.84	33.89
1 July - 31 December 2017	42.03	34.38	29.60

The number of gas purchasers in the retail market was ca 49.3 thousand customers, incl 47.2 thousand household consumers. The share of the seller switch is an average of 12% by the consumers.

Five operators have the gas import license. Two of them actually imported gas in 2017. There were total of 24 distribution system operators (total length of the network is 2,131 km), and the market share of the biggest system operator is 82% (1,483 km of distribution system). Total of 41 operators act as the gas sellers. Majority of the sellers sell gas in their own network area. 7 persons operate actively and the market share of the biggest operator is 92%. Six operators act as the balance responsible parties.

ii. Projections of development with existing policies and measures at least until 2040 (including for the year 2030).

This chapter will be compiled in 2019 after publishing the GHG emissions projections.

4.6. Dimension research, innovation and competitiveness

i. Current situation of the low-carbon-technologies sector and, to the extent possible, its position on the global market (that analysis is to be carried out at Union or global level)
 ii. Current level of public and, where available, private research and innovation spending on low-carbon-technologies, current number of patents, and current number of researchers

In 2018, the Academy of Sciences launched a call for finding the performer of the research "Options for alleviating the climatic changes on carbon capture and use in the industry"¹²⁶ within the framework of the strategic research and development of the RITA programme. The

¹²⁶ http://www.etag.ee/wp-content/uploads/2018/06/Konkursiteade_kliimamuutused.pdf

research is financed by the European Regional Development Fund and our State. The maximum budget for the research is 947,370 euros (with VAT). When additional funds are added to the RITA 1 budget, the Estonian Research Council has the right to increase the project's budget to 1,000,000 euros.

iii. Breakdown of current price elements that make up the main three price components (energy, network, taxes/levies)

iv. Description of energy subsidies, including for fossil fuels

Regulation (EU) 2018/1999 does not provide for the definition of the energy support but according to the recital 20 of the Regulation, the Member States may take the definition of the energy support of the international organisations as the basis. According to OECD, the energy support means measures in relation to which existence energy is lower in a certain market segment or it is consumed more than in the market that operates without interventions.

Estonia applies minimum of energy consumption subsidies for the consumers. Energy subsidies are available for natural and legal persons.

Fossil fuel subsidies for natural persons

People with subsistence difficulties may receive the subsistence support according to which the calculations of the subsistence support consider the household's housing costs, including cost of the thermal energy or fuel consumed for heating. Local governments establish with their legislation the terms for calculating the housing costs¹²⁷. The local government may establish the limits to costs, such as maximum rate of the energy costs with the regulation. Issues relating to the energy poverty are more thoroughly described in chapters 2.4.4 and 3.4.4.i.

Estonia does not impose the excise duty on the solid fuel (coal, peat briquettes, firewood, etc.) used as fuel in the households.

The main fuel used in the households in Estonia is wood and wood-based fuels the consumption of which formed total of 86% of the fuels used for heating in the households in 2017 according to Statistics Estonia. Since the wood and the wood-based fuels are not taxed in any sector in Estonia, the excise duty exemption of wood and wood-based fuels is not classified as the energy subsidy.

Despite the excise exception of the fossil fuels used in the households, the quantities of the fuels used in the households by natural persons are modest. According to Statistics Estonia, the fossil fuels formed total of 0.6% of the fuels used for heating the households in 2017.

Energy subsidies for legal persons

Estonia has gradually reduced the energy subsidies for legal persons. An overview of the energy subsidies for the legal persons in 2016 are summarised in the following table (see Table 34).

¹²⁷ See e.g.

Table 34. Energy subsidies for legal persons in 2016¹²⁸

Energy subsidy	Estimated volume of energy subsidies, M€	
Excise duty exemption for the diesel fuel marked with a fiscal marker used in the inland fishing boats	1,255,000	
The lower excise duty rate for the diesel fuel marked with a fiscal marker and the light heating oil used in agriculture	32,000,000	
Excise duty exemption for the natural gas that is used for keeping the natural gas system operable	110,000	
Subsidy for electricity generation on the efficient cogeneration mode from peat or retorting gas of the oil shale processing based on the Electricity Market Act	4,400,000	
Excise duty exemption for the diesel fuel that is used in the mineralogical processes	250,000	
Excise duty exemption for the natural gas that is used in the mineralogical processes	250,000	
Excise duty exemption for the fuel that is used in the civil aircraft and national aircraft operated for the business purposes for navigating in the air and maintenance and repair works of the aircraft	0	
Excise duty exemption to the fuel of the fuel producer that the fuel producer uses in their own territory as the heating fuel or in a stationary motor fuel production process	0	

5. IMPACT ASSESSMENT OF PLANNED POLICIES AND MEASURES¹²⁹

- 5.1. Impacts of planned policies and measures described in section 3 on energy system and greenhouse gas emissions and sinks including comparison to projections with existing policies and measures (as described in section 4).
- i. Projections of the development of the energy system and GHG emissions and removals as well as, where relevant of emissions of air pollutants in accordance with Directive (EU) 2016/2284 under the planned policies and measures at least until ten years after the period covered by the plan (including for the last year of the period covered by the plan), including relevant Union policies and measures.

As of July 2018, drawing up drafts of several sectoral development plans (agricultural and fishery sector development plan, forestry development plan, transport development plan) for

¹²⁸ OECD, see <u>https://doi.org/10.1787/505a4fca-en</u>

¹²⁹ Planned policies and measures are options under discussion and having a realistic chance of being adopted and implemented after the date of submission of the national plan. The resulting projections under section 5.1.i shall therefore include not only implemented and adopted policies and measures (projections with existing policies and measures), but also planned policies and measures.

the period 2021-2030 is in progress. Since the draft development plan process is only in the initial phase, the measures specified in this chapter come from the research for "Finding out the most cost-effective measures for achieving the targets of the climate policy and shared effort regulation in Estonia" ordered in cooperation between the Environmental Investments Centre and Ministry of the Environment, Ministry of Rural Affairs, Ministry of Economic Affairs and Communications and Ministry of the Finances.. The aim of the research was to find out the measures that are most cost-efficient and socio-economically favourable for reducing Estonian GHG emission over the period 2021-2030.

It must be noted that to handle the subsequently presented measures actually in the development plans, additional assessments must be conducted and the GHG inventory methods should be applied. No decisions have been made about potential application of the specified measures.

The study above focused on the agricultural, transport, waste and energy sectors. The following tables Table 35 and Table 36 show the proposals for potential measures in the agricultural and transport sector in an aggregate form.

Agriculture

Measure	2020	2025	2030	2035
Improvement of the quality of feed for dairy cows	1.4	7.2	14.9	14.9
Using ionophores for beef cattle	2.8	16	30.1	30.1
Increase in the share of grazing	0.7	3	5.2	5.2
Converting the arable lands on peat soils to permanent grassland	4	21.8	39.6	57.5
Direct sowing	1.3	7.6	13.9	13.9
Winter plant cover	4.5	24.7	44.9	44.9
Precision fertilisation	5.2	15.5	25.9	25.9
Biomethane from manure	3.8	10	16.9	19
Growing energy crops on sandy soils	1.4	8.2	15	15
Replacement of inorganic fertilisers with organic fertilisers	0	6.6	13.3	19.9
TOTAL	25.1	120.6	219.7	246.3

Table 35. Overview of the impact of measures in the agricultural sector, kt CO₂ eq

<u>Transport</u>

Table 36. Overview of the impact of measures in the transport sector, kt CO₂ eq

Measure	2020	2025	2030	2035
Enhancement of economic management	5.4	32.2	58.7	84.7
Development of cycle and pedestrian tracks	2.3	14	23.3	23.3
Adding the public transport service	10.3	61.9	103.2	103.2
Congestion charge in Tallinn	0	87.4	87.4	87.4
Parking policy in cities	7.3	44.1	73.4	73.4
Other spatial and land use measures in cities for increasing the transport fuel-efficiency	13.2	79.3	132.2	132.2
Remote work and e-services	5.5	32.9	54.9	54.9
Co-use of vehicles	1.3	7.5	12.6	12.6
Road charges of vehicles	0	251.5	335.3	335.3
Registration and annual fee of passenger cars	0	131.8	219.7	219.7
Road charge of heavy duty vehicles	10.3	20.6	20.6	20.6
Tyres and aerodynamics of heavy duty vehicles	4.8	28.8	48.1	48.1
Electric cars	6.4	43.6	82.2	83.7
Rail Baltic	0	0	80.3	80.3
TOTAL	66.8	774.32	1540.9	1359.4

<u>Projections of the emissions of air pollutants in accordance with Directive (EU)</u> <u>2016/2284</u>

As of July 2018, drawing up of the national programme for reduction of the emissions of the air pollutants for 2020-2030 is in progress with the aim to obtain an overview of the options and potential for reducing the Estonian emissions emitted to the air from stationary and mobile emission sources.

Ambient air pollutant projections will be added to the final energy and climate plan submitted in 2019.

ii. Assessment of policy interactions (between existing policies and measures and planned policies and measures within a policy dimension and between existing policies and measures and planned policies and measures of different dimensions).

In regard of this, a firm understanding must be established about the impact of the energy efficiency/energy saving policy to the size of the energy system and reduce the risk of failure of the investments in the energy supply.

iii. Assessment of interactions between existing policies and measures and planned policies and measures, and between those policies and measures and Union climate and energy policy measures.

5.2. Macroeconomic and, to the extent feasible, the health, environmental, employment and education, skills and social impacts of the planned policies and measures described in section 3

The chapter must give an assessment to about costs and incomes to different aspects as well as regarding the energy efficiency until at least the last year of the period covered with the plan, i.e. give the comparison with the projections that cover the existing policies and measures.

Adding of the macroeconomic, environmental, skills-related and social impact of the policies and measures planned according to point 3 is considered, if possible, and as far as possible to the final energy and climate plan submitted in 2019.

5.3. Overview of investment needs

This chapter will be compiled in 2019 after publishing the GHG emissions projections.

- i. Existing investment flows and forward investment assumptions with regard to the planned policies and measures
- ii. Sector or market risk factors or barriers in the national or regional context
- iii. Analysis of additional public finance support or resources to fill identified gaps identified under point ii.

5.4. Impacts of planned policies and measures on other Member States and regional cooperation

This chapter should cover impacts of planned policies and measures described in point 3 on other Member States and regional cooperation at least until the last year of the period covered by the plan, including comparison to projections with existing policies and measures.

i. Impacts on the energy system in neighbouring and other Member States in the region to the extent possible.

Electricity infrastructure measures (for more information, see chapter 2.4.2) primarily address the synchronisation of the electrical systems of the Baltic States to the frequency area subject to EU law. Activities undertaken within the Baltic States synchronisation project take place in Estonia, Latvia, Lithuania as well as Poland. Investments within the framework of synchronisation strengthen the cross border connections as well as the domestic electricity transmission system. That way, the bottlenecks of the electrical system are removed and the interconnectivity of the energy grids of the Baltic States and Poland is increasing. The connectivity level of the electricity system of the Baltic States was >60% in 2017. In the same year, the connectivity level of Poland was $4\%^{28}$. Investments made in the context of the synchronisation of the Baltic States will increase it by 2.4 percentage point³⁴. Hence the activities planned in the framework of the synchronisation project have a significant positive impact to the electricity systems of the neighbouring member states and the member states of other regions.

ii. Impacts on energy prices, utilities and energy market integration.

The result of the electrical system of the Baltic States is also the exchange price convergence in the Baltic States. The electricity exchange price was 5.8% higher in Lithuania and 4.5% higher in Latvia than in Estonia in 2017. At the same time electricity exchange price in Estonia was substantially the same as in Finland $(33.2 \text{ €/MWh})^{130}$. Hence the planned electricity infrastructure measures have a positive impact on the exchange prices of energy as well as the market integration.

iii. Where relevant, impacts on regional cooperation

¹³⁰ Nord Pool Spot. Day ahead prices. <u>https://www.nordpoolgroup.com/Market-data1/Dayahead/Area-Prices/ALL1/Yearly/?view=table</u>

ANNEX I LIST OF PARAMETERS AND VARIABLES TO BE REPORTED IN SECTION B OF NATIONAL PLANS

This Annex provides the data required in part 2 of Annex I of the Directive (EU) 2018/1999. The content of the Annex is also provided in the Microsoft Excel file.

The remarks about the file are as follows:

- for each parameter/variable in the list, trends over the years 2005-2040 (2005-2050 where appropriate) including for the year 2030 in five year intervals shall be reported both in section 4 and 5. Parameter based on exogenous assumptions v modelling output shall be indicated in the table.
- The submitted data and projections primarily rely on the Eurostat data and methods that are used for submitting statistics within the framework of the relevant sectoral legislation and be in compliance with these data and methods. European statistics is the main statistics source that is used for submitting the statistics used for reporting and monitoring according to the Regulation (EC) No. 223/2009 on the European statistics.
- All projections had to be performed on the basis of constant prices (2016 prices used as base year).
- The Commission has provided recommendations for key parameters for projections that cover oil, gas, and coal import prices as well as EU ETS carbon prices.

The file covers an overview of the following parameters, variables and the energy balances and parameters from section B of the national plan "Analytical basis", if used:

1. General parameters and variables

Population [million]

- (1) GDP [euro million]
- (2) Sectoral gross value added (including main industrial, construction, services, and agriculture sectors) [euro million]
- (3) Number of households [thousands]
- (4) Household size [inhabitants/households]
- (5) Disposable income of households [euro]
- (6) Number of passenger-kilometres: all modes, i.e. split between road (cars and buses separated if possible), rail, aviation and domestic navigation (when relevant) [million pkm]
- (7) Freight transport tonnes-kilometres: all modes excluding international maritime, i.e. split between road, rail, aviation, domestic navigation (inland waterways and national maritime) [million tkm].
- (8) International oil, gas and coal fuel import prices [euro/GJ or euro/toe] based on the Commission's recommendations
- (9) EU-ETS carbon dioxide price [EUR/EUA] based on the Commission's recommendations

An average carbon price was of 5.7 euros in 2017. An average projected carbon price is 5.9 euros for 2018 and the projected carbon price for 2019 is 7 euros.

- (10) Exchange rates to euro and to USD (where applicable) assumptions [euro/currency and USD/currency]
- (11) Number of Heating Degree Days (HDD)
- (12) Number of Cooling Degree Days (CDD)
- (13) Technology cost assumptions used in modelling for main relevant technologies.

2. Energy balances and indicators

2.1. Energy supply

- (1) Indigenous Production by fuel type (all energy products that are produced in significant quantities) [ktoe]
- (2) Net imports by fuel type (including electricity and split into intra- and extra EU net imports) [ktoe]
- (3) Import dependency from third countries [%]
- (4) Main import sources (countries) for main energy carriers (including gas and electricity)
- (5) Gross Inland Consumption by fuel type source (including solids, all energy products: coal, crude oil and petroleum products, natural gas, nuclear energy, electricity, derived heat, renewables, waste) [ktoe]

2.2. Electricity and heat

- (1) Gross electricity generation [GWh]
- (2) Gross electricity generation by fuel (all energy products) [GWh]
- (3) Share of combined heat and power generation in total electricity and heat generation [%]
- (4) Capacity electricity generation by source, including retirements and new investment [MW]
- (5) Heat generation from thermal power generation
- (6) Heat generation from combined heat and power plants, including industrial waste heat
- (7) Cross-border interconnection capacities for gas and electricity [Definition for electricity in line with outcome of ongoing discussions on basis for 15% interconnection target] and their projected usage rates

Electricity

Limit	Orientation	2018, MW	2030, MW
EE-FI	EE->FI	1000	1000
EE-FI	FI->EE	1000	1000
EE-LV	EE->LV	836	1350
EE-LV	LV->EE	836	1350

Limit	Orientation	2018, million m ³ /day	2030, million m ³ /day
EE-FI	EE->FI	0	7.7
EE-FI	FI->EE	0	7.7
EE-LV	EE->LV	0	10

EE-LV	LV->EE	7	10
EE-RU	EE->RU	0	0
EE-RU	RU->EE	7	4

2.3. Transformation sector

- (1) Fuel inputs to thermal power generation (including solids, oil, gas) [ktoe]
- (2) Fuel inputs to other conversion processes [ktoe]

2.4. Energy consumption

- (1) Primary and final energy consumption [ktoe]
- (2) Final energy consumption by sector (including industry, residential, tertiary, agriculture and transport (including split between passenger and freight transport, when available)) [ktoe]
- (3) Final energy consumption by fuel (all energy products) [ktoe]
- (4) Final non-energy consumption [ktoe]
- (5) Primary energy intensity of the overall economy (primary energy consumption per GDP [toe/euro]
- (6) Final energy intensity by sector (including industry, residential, tertiary and transport (including split between passenger and freight transport, when available))

2.5. Prices

- (1) Electricity prices by type of using sector (residential, industry, tertiary)
- (2) National retail fuel prices (including taxes, per source and sector) [euro/ktoe]

2.6. Investment

Investment costs in energy transformation, supply, transmission and distribution sectors

2.7. Renewables

- (1) Gross final consumption of energy from renewable sources and share of renewable energy in gross final energy consumption and by sector (electricity, heating and cooling, transport) and by technology.
- (2) electricity and heat generation from renewable energy in buildings (as defined in article 2(1) of Directive 2010/31/EU). This shall include, if available, disaggregated data on energy produced, consumed and injected into the grid by solar photovoltaic systems, solar thermal systems, biomass, heatpumps, geothermal systems, as well as all other decentralized renewables systems;
- (3) If applicable, other national trajectories, including long-term or sectoral ones (the share of food-based and advanced biofuels, the share of renewable energy in district heating, as well as the renewable energy produced by cities and energy communities as defined by Article 22 of [recast of Directive 2009/28/EC as proposed by COM(2016) 767])

3. GHG emissions and removals related indicators

- (1) GHG emissions by policy sector (EU ETS, Effort Sharing Regulation and LULUCF)
- (2) GHG emissions by IPCC sector and by gas (where relevant, split into EU ETS and effort sharing sectors) [tCO₂eq]

- (3) Carbon Intensity of the overall economy $[t_2eq/GDP]$
- (4) CO₂ emission related indicators
 - a) GHG intensity of domestic power and heat generation [tCO₂eq/MWh]
 - b) GHG intensity of final energy consumption by sector [tCO₂eq/toe]
- (5) Other than CO₂ emission related indicators
 - a) Farmed animals: dairy cattle [1000 heads], non-dairy cattle [1000 heads], sheep [1000 heads], pig [1000 heads], poultry [1000 heads];
 - b) Nitrogen input from application of synthetic fertilisers [kt nitrogen];
 - c) Nitrogen input from application of manure [kt nitrogen];
 - d) Nitrogen fixed by N-fixing crops [kt nitrogen];
 - e) Nitrogen in crop residues returned to soils [kt nitrogen];
 - f) Area of cultivated organic soils [hectares];
 - g) Municipal solid waste (MSW) generation;
 - h) Municipal solid waste (MSW) going to landfills;
 - i) Share of CH₄ recovery in total CH₄ generation from landfills [%].

ANNEX II CCAP 2050 POLICIES AND PRINCIPLES

Policies covering the entire economy

- Estonia will be shaped into an attractive environment primarily for development of the innovative technologies, products and services that reduce the GHG emissions. Also their export and global implementation for solving the global problems relating to the climate change is favoured.
- To foster the climate-friendly attitudes and selection of the consumers as well as companies, the awareness of the society is increased about alleviation of the climate changes and adaptation to their impact.
- The economic growth is untied from the growth of the use of the primary raw material through enhancement of the resource efficient circular economy by considering the sustainable development targets and primarily the principles of sustainable production and consumption.
- Among other developed countries, Estonia contributes to cross-border alleviation of the climate changes and adaptation to their impact within the framework of the development collaboration by involving the best Estonian know-how, as appropriate. Existing and future flexibility mechanisms will be used for increasing the cost efficiency of achieving the climate targets.

Sectoral policies for alleviating the climate changes

Energy and industry

- Efficient co-functioning of the system as a whole is taken as the basis for planning the energy consumption centres and new production capacities and management of consumption and production.
- The industrial process will favour application of mainly the low carbon specific emission technologies and efficient use of resources. In the industries
- Renovation of the existing building stock and planning and building of new buildings will be based on the economic and energy efficiency of the system as a whole to achieve the maximum energy efficiency of the whole used building stock.
- Planning, building, maintenance and reconstruction of networks in the energy systems will be based on the economic and energy efficiency of the system as a whole with the aim to achieve maximum energy and resource efficiency.
- The use of oil shale is moving towards giving higher energy value and producing the products with added value to minimise the GHGs occurring during the treatment processes in a way that will not involve increase in other negative environmental impact.
- Large-scale energy and industry sector participants are directed to reduce the GHG emissions strongly and cost efficiently by continuing the use of market-based mechanisms.
- The gradual introduction of domestic renewable energy sources in final consumption is favoured in all sectors by keeping in mind the growth of the welfare of the society and the need to ensure the energy security and security of supply.
- The research, development and innovation trends are preferred in restriction of the GHG emissions of energy and industry which will promote development of efficient energy technologies and increase in the value of the domestic renewable energy resource, will increase the energy saving of primary energy an reduce the GHG emissions

<u>Transport</u>

- The need for the forced movement and dependence from a personal car is reduced via a well-integrated settlement and planning of the transport organisation. Also the energy efficient traffic culture will be promoted.
- The economy and share of sustainable transport fuels of the transport fleet will be increased primarily by the help of purposeful taxation policy and example of public sector.
- Transport and movement ways with low GHG emissions is preferred via the preferred development of public transport, light traffic and energy efficient cargo traffic.
- Research, development and innovation trends that favour raising the awareness and competence of the institutions and companies of the central government and local government are promoted in development of the sustainable transport and mobility and implementation of demo projects.

<u>Agriculture</u>

- Carbon stock of the soils will be increased and maintained and the areas with significant carbon stock will be developed and maintained.
- Efficient and environmentally-friendly use of the agricultural land will be favoured and its falling out of use will be avoided. The production potential of the agricultural land and the area of the arable land with valuable soil will be maintained.
- The use of the plant nutrients will be improves and replacement of mineral fertilisers with organic ones and environmentally friendly meliorants will be encouraged. Needless discharge of organic matter will be avoided.
- Bioenergy production and its use primarily instead of the non-renewable fuels witch production in energy intensive will be strongly promoted.
- The productivity and the efficiency of the use of resources of the agricultural sector will be increased to reduce the GHG emissions per production unit.
- Research, development and innovation trends that increase the sustainability of agriculture will be preferred upon limiting the GHG emissions in agriculture. To promote innovation, the research will closely be linked with agricultural production via education, notification and counselling.

Forestry and land-use

- Forest growth and carbon removal capabilities will be increased with productive and sustainable forest management and in the longer perspective, the carbon stock of the forests will be maintained.
- Use of timber will be promoted consistently and the carbon stock in timber products and building will be increased by replacing so the use of the non-renewable natural resources.
- Preservation of the current forest land area will be encouraged and in other land use categories the carbon removal increasing and emission reduction methods will be preferred.
- The carbon stock related to the peat in the swamps will be maintained or increased. Further land reclamation will be avoided, and if possible, the water regime close to the natural one will be recovered on the already reclaimed land, or it will be attempted to avoid further degradation of the areas..
- Research, development and innovation trends that help increase carbon removal and find alternative timber use methods are preferred in the forestry and land use sector.

ANNEX III LEGISLATION

The following lists the Estonian legal acts that contribute to meeting the targets indicated in chapter 2.1.1 of the NECP 2030.

The Sustainable Development Act (RT I 1995, 31, 384) that was last amended on 1 January 2017 provides the sustainable development principles. Hence this the basis for all environmental legal acts and relevant national programmes. Therefore, the legal acts that regulate the energy, industry and transport sector (sectors that generate GHGs the most) usually consider the most important environmental issues.

The Atmospheric air protection Act (RT I,05.07.2016, 1) valid from 1 January 2017 provides for:

- 1. the requirements set for affecting ambient air by chemical and physical pollutants;
- 2. the measures for maintaining and improving the quality of ambient air;
- 3. the requirements for protection of ozone layer;
- 4. the measures for mitigation of climate changes and reduction of greenhouse gas emissions;
- 5. the organisation of state supervision over compliance with the requirements provided for in this Act;
- 6. the liability for failure to comply with the requirements provided for in this Act.

The Act provides for that the activities relating to the climate change reduction activities are organised by the Ministry of the Environment based on the GHG emissions limitation requirements provided for in the United Nations Framework Convention on Climate Change, Kyoto Protocol and EU legislation.

The operators OF the pollutants also have to implement additional measured to reduce the emissions of the carbon dioxide and other GHGs. Several Level 2 legal acts have been issued based on this Act.

Environmental Monitoring Act (RT I, 18.05.2016, 1) establishes the organisation of national, local government and voluntary environmental monitoring, the completion of national environmental monitoring programme and its sub-programmes, the establishment, use, protection and liquidation of national environmental monitoring stations and areas, the procedure for the storage, use and dissemination of data obtained during the course of environmental monitoring, and the organisation of state supervision and the responsibility for failure to meet the requirements provided in this Act.

Environmental Register Act (RT I 2002, 58, 361) provides the grounds for the entry of data regarding natural resources, natural heritage, the status of the environment and environmental factors in the environmental register, for the retention of data in the register and for the processing and release of data.

Environmental Impact Assessment and Environmental Management System Act (RT I 2005, 15, 87) provides legal grounds and procedure for the assessment of likely environmental impact, organisation of the environmental management and audit scheme and legal grounds for awarding the eco-label in order to prevent environmental damage and establishes liability for violation of the requirements of this Act.

The purpose of the **General Part of the Environmental Code Act** (RT I, 28.02.2011, 1) is to ensure reduction of environmental nuisances to the maximum extent possible in order to

protect the environment, human health, well-being, property and cultural heritage. The Act also provides the condition for promoting the sustainable development to ensure the environment that meets health and well-being needs for the current as well as further generations, including prevention of damage to the environment and the remedying of damage caused to the environment.

The purpose of the **Environmental Liability Act** (RT I 2007, 62, 396) is to apply more efficiently the polluter pays principle and respond more effectively to the environmental damage. This determines the procedure for preventing and remedying the environmental damages, according to which the person who caused the environmental has to recover the situation before the damage.

The purpose of the **Industrial Emissions Act** (RT I, 16.05.2013, 1) is to achieve a high level of protection of the environment taken as a whole by minimizing emissions into air, water and soil and the generation of waste in order to prevent adverse environmental impacts. This Act also determines the industrial activities of high environmental hazard, provides the requirements for operation therein and liability for failure to comply with the requirements, and the organisation of state supervision.

Electricity Market Act (RT I 2003, 25, 153) governs the generation, transmission, sale, export, import and transit of electricity and the economic and technical management of the power system. The Act prescribes the principles of the operation of the electricity market, based on the need to ensure an effective supply of electricity which is provided at a reasonable price and which meets environmental requirements and the needs of consumers, and the utilisation of energy sources in a balanced manner, in an environmentally clean way and with a long-term perspective. The Act prescribe that the electricity undertakings shall always facilitate activities performed by consumers for the purpose of conserving electricity.

Liquid Fuel Act (RT I 2003, 21, 127) provides the grounds and procedure for handling liquid fuel, the requirements for the release for consumption of biofuels for transport, the arrangements for exercising state supervision and the liability for violations of this Act.

District Heating Act (RT I 2003, 25, 154) governs activities related to the production, distribution and sale of heat by way of district heating networks and connection to district heating networks.

Product Conformity Act (RT I 2010, 31, 157) provides the competence of authorities participating in market surveillance and the fact that the Technical Surveillance Authority exercises state surveillance on whether the requirements for energy efficiency, energy-performance labels and ecological design established for household appliances, heating appliances and devices are performed.

Since the buildings have a major share in total energy consumption, improvement of the energy efficiency in the residential and services sector will help reduce the emissions remarkably. Here the impact of the EU Buildings energy efficiency Directive 2002/91/EC and its recast version 2010/31/EU must be emphasised. In Estonia, the Ministry of Economic Affairs and Communications is responsible for implementation of the energy efficiency directive of the buildings. Provisions of the indicated Directive are transposed to the Building Code. Several detailed requirements were enforced with secondary legislation. The most important of these legal acts is the Regulation No. 55 "Minimum energy performance

requirements of the building" of 3 June 2015 of the Government of the Republic. This will be adapted to the new as well as existing thoroughly reconstructed buildings.

For the environmental impact, the **Organic Farming Act** (RT I 2006, 43, 327) is important among the legal acts that regulate the agricultural sector since it provides the requirements for operating in the organic farming area in a scope that is not regulated with the EU regulations, basis and scope of national supervision of the persons operating in the organic farming area and the responsibility in the case of violating the requirements established with these legal acts. Several other legal acts that regulate organic farming have been issued based on this Act.

Forest Act (RT I 2006, 30, 232) regulates the directing of forestry, forest survey and management and compensating the damage caused to the environment within the meaning of this Act, and provides for liability for violation of this Act. This Act regulates the sustainable management of forests as well as renewable natural resources.

Waste Act (RT I 2004, 9, 52) provides requirements for preventing waste generation and the health and environmental hazards arising from waste. It also covers measures for improving the efficiency of the use of natural resources and reducing the adverse impacts of such use.

ANNEX IV LIST ON NECP 2030 MEASURES

- Measure 1 More efficient oil shale utilisation (2×215 MW)
- Measure 2 More efficient oil shale utilisation (300 MW)
- Measure 3 Renewable energy support and support for efficient cogeneration of heat and power
- Measure 4 Support for investments made to wind farms
- Measure 5 Development of heating sector management
- Measure 6 Additional development of the heating sector management
- Measure 7 Increasing the percentage of biofuels in the transport sector
- Measure 8 Increasing the fuel efficiency of the transport sector
- Measure 9 Promotion of fuel-efficient driving

Measure 10 Spatial and land use measures in cities to increase the fuel-efficiency of transport and enhancement of the transportation system

- Measure 11 Development of convenient and modern public transport
- Measure 12 Additional increasing of fuel-efficiency of the transport sector
- Measure 13 Additional promoting of fuel-efficient driving

Measure 14 Additional spatial and land use measures in cities to increase the fuelefficiency of transport and enhancement of the transportation system

Measure 15 Additional activities for development of convenient and modern public transport

- Measure 16 Establishment of road charges for heavy duty vehicles
- Measure 17 Congestion charge in Tallinn
- Measure 18 Development of railway infrastructure (incl construction of Rail Baltic)
- Measure 19 Reconstruction of public sector and business buildings
- Measure 20 Reconstruction of private residences and apartment buildings
- Measure 21 Establishment of minimum requirements for nearly zero-energy buildings
- Measure 22 Additional reconstruction of public sector and business buildings
- Measure 23 Additional reconstruction of private residences and apartment buildings
- Measure 24 Increasing the quality of network services
- Measure 25 Increasing the percentage of the weatherproof grid

Measure 26 Introduction of the fixed fee for transmission and distribution system as considering the fixed costs of the system operator

Measure 27 Transition to remote reading system

Measure 28 Synchronisation of the Baltic electricity system with the synchronous areas of Continental Europe

Measure 29 Research and development activities program of the energy development plan

Measure 30 Implementation of the prohibitions and obligations established in the fluorinated GHG Regulation (EU) No. 517/2014 and Directive 2006/40/EC relating to emissions from air-conditioning systems in motor vehicles

Measure 31 Favouring the offers and use of the renewable energy sources

Measure 32 Supporting the organic farming

Measure 33 Supporting the ecological management

Measure 34 Environmental sustainability measure of the EU common agricultural policy

Measure 35 Reduce emissions of the GHG and ammonia of the agricultural sector

Measure 36 Favouring storage and capture of carbon in the agriculture and forestry

Measure 37 Introduction of efficient fertilisation technologies

Measure 38 Reduction of pollution from nutrients produced in the agricultural sector

Measure 39 Reduction of amount landfilled

Measure 40 Avoid and reduce waste generation, including reduce hazardousness of the waste

Measure 41 Taking the waste to recycling and reuse to the greatest extent possible

Measure 42 Reduction of the environmental risk from the waste and enhancement of monitoring and management

Measure 43 Prohibition of percentage of biodegradable waste going to landfills and increasing the volume of taking the waste materials to recycling

Measure 44 Increasing the net increment of forests for alleviating the climate changes and capability of carbon capture via timely reforestation

Measure 45 Promoting reforestation of the managed private forests with the habitat type compatible tree species

Measure 46 Improvement of the forest health and avoiding dispersion of dangerous negative factors

Measure 47 Reduction of environmental impacts related to the use of fossil fuels and nonrenewable natural resources by increasing the Estonian timber production and use

Measure 48 Natura 2000 support for private forest estates

Measure 49 Increasing the economic and ecological viability of the forests

Measure 50 Supporting growing of local plant varieties

Measure 51 Regional soil protection support

Measure 52 Crop diversification (measure of EU common agricultural policy)

Measure 53 Supporting maintenance of semi-natural habitats

Measure 54 Securing protection of habitats

Estonian National Energy and Climate Plan until 2030

Annex IV: List of Measures

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NECP chapter	3.1.3.i
Other related NECP 2030 chapters	
Number of the program or measure	1
Name of the program or measure	More efficient use of oil shale (2x215 MW)
Objective	Enhancement of the energy and energy conversion sector
Quantitative objective	
Brief description	Two PC boilers were replaced with the FBC boiler blocks (2×215 MW) in the Narva Power Plants
Related dimensions of the Energy Union	
Sector affected	Energy supply (comprising extraction, transmission, distribution and storage of fuels as well as energy and electricity production)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Regulatory
European Union legislation underlying the program or measure	Industrial emissions Directive 2010/75/EU (Recast of IPPC Directive 2008/1/EC and Large Combustion Plant Directive 2001/80/EC)
Status of implementation of the program or measure	Adopted or Expired
Period of implementation of the program or measure	2004-2005
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Eesti Energia AS (Companies)
Reference to analysis or technical reports	
0	

NECP chapter	3.1.3.i
Other related NECP 2030 chapters	
Program or measure number	2
Name of the program or measure	More efficient use of oil shale (300 MW)
Objective	Enhancement of the energy and energy conversion sector
Quantitative objective	
Brief description	Building of an additional FBC boiler (with capacity of 300 MW) which is the Auvere oil-shale based power plant. The plant was became operational 2015. The new plant is designed so that 50% of the used fuel input can be biomass.
Related dimensions of the Energy Union	
Sector affected	Energy supply (comprising extraction, transmission, distribution and storage of fuels as well as energy and electricity production)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Regulatory
European Union legislation underlying the program or measure	Industrial emissions Directive 2010/75/EU (Recast of IPPC Directive 2008/1/EC and Large Combustion Plant Directive 2001/80/EC)
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2012-2015
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Eesti Energia AS (Companies)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	3
Name of the program or measure	Renewable energy support and support for efficient cogeneration of heat and power
Objective	Increase electricity production from the renewable energy sources and enhance cogeneration
Quantitative objective	
Brief description	The Electricity Market Act governs the support of the renewable energy production.
Related dimensions of the Energy Union	
Sector affected	Energy supply (comprising extraction, transmission, distribution and storage of fuels as well as energy and electricity production)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	RES directive 2009/28/EC; Cogeneration Directive 2004/8/EC
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2007
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Eesti Energia AS (Companies)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	4
Name of the program or measure	Support for investments made to wind farms
Objective	Increase electricity production from the renewable energy sources
Quantitative objective	
Brief description	Support has been provided via different plans (incl so-called Joint Implementation and Green Investment Scheme (GIS))
Related dimensions of the Energy Union	
Sector affected	Energy supply (comprising extraction, transmission, distribution and storage of fuels as well as energy and electricity production)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Taxation (Fiscal); Legislation (Regulatory)
European Union legislation underlying the program or measure	RES directive 2009/28/EC
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2010
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Environmental Investments Centre
Reference to analysis or technical reports	
0	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	5
Name of the program or measure	Development of heating sector management
Objective	More extensive use of the renewable energy, transfer to fuels that emit less carbon, enhancement of the energy and energy conversion sector, reduction of heat losses
Quantitative objective	
Brief description	This measure covers development of the heating sector, including renovation of boiler houses and heating networks and transfer of the consumers to the block and local heat supply. This measure covers transfer from the fuel oils to the renewable energy and/or local energy sources which include biomass, peat, and other, reduction of the heat loss of the district heating networks and re-building of the inefficiently operating district heating networks (less than 1.2 MWh heat is sold per 1 m of heating pipes) into block and local heat supply systems.
Related dimensions of the Energy Union	
Sector affected	Energy supply (comprising extraction, transmission, distribution and storage of fuels as well as energy and electricity production)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2015
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	6
Name of the program or measure	Additional development of the heating sector management
Objective	More extensive use of the renewable energy, transfer to fuels that emit less carbon, enhancement of the energy and energy conversion sector, reduction of heat losses
Quantitative objective	
Brief description	This measure covers additional development of the heating sector, including additional renovation of boiler houses and heating networks and additional support for transfer of the consumers to the block and local heat supply. This means that additional resources have been planned for achievement of additional energy efficiency and saving of additional GHG emissions. Since this is a planned measure, its implementation time is not clear yet.
Related dimensions of the Energy Union	
Sector affected	Energy supply (comprising extraction, transmission, distribution and storage of fuels as well as energy and electricity production)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	Planned
Period of implementation of the program or measure	2017
A scenario, in which the program or measure has been taken into account	WAM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	7
Name of the program or measure	Increasing the share of biofuels in the transport sector
Objective	Low carbon fuels/electric cars
Quantitative objective	
Brief description	The main objective of the specified measure is to achieve the 10% share of biofuels in the transport sector by 2020. To achieve this, the blending obligation is established for the liquid fuels and the share of the biogas use is increased in the transport sector.
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC; RES directive 2009/28/EC
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2010
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	
6	

NECP chapter	3.1.1.i
-	5.1.1.1
Other related NECP 2030 chapters	
Program or measure number	8
Name of the program or measure	Increasing the fuel efficiency of the transport sector
Objective	Improvement of the economy of vehicles
Quantitative objective	
Brief description	This measure covers development of the support system for energy- efficient vehicles, hybrid buses, hybrid trolleys, electric buses, etc.
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	
0	

NECP chapter	3.2.i
Other related NECP 2030 chapters	3.1.1.i
Program or measure number	9
Name of the program or measure	Promotion of fuel-efficient driving
Objective	Reduction of the fuel consumption of vehicles via introducing eco- driving
Quantitative objective	
Brief description	Eco-driving helps save fuel, reduce noise level, exhaust gases, accidents and vehicle repair costs. Many countries carry out the eco- driving trainings in the traffic safety programs since this minimises the number of traffic accidents.
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	https://www.mkm.ee/sites/default/files/180917 energiatohusus 2030 aruanne.pdf

NECP chapter	3.2.i
Other related NECP 2030 chapters	3.1.1.i
Program or measure number	10
Name of the program or measure	Spatial and land use measures in cities to increase the fuel-efficiency of transport and enhancement of the transportation system
Objective	Shift towards the increase in the use of the public transport and non- motorised means of transport, control/reduction of demand, enhancement of transport infrastructure.
Quantitative objective	
Brief description	 This is the set of measures: (1) Directing the land use for reduction of urban sprawl and dependence on vehicles (forced movement); (2) Rearrangement of urban roads for enhancement of public transport and light traffic (incl building and maintenance of light traffic roads); (3) Development of mobility management of cities and companies. This measure presumes stronger spatial planning of regional level since the activities of the measure exit the borders of one local government. (This measure covers development of telecommunications and short-term car rental systems. The objective of the measure is to alleviate the transport load of peak hours).
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information); Planning, Legislation (Regulatory)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	https://www.mkm.ee/sites/default/files/180917 energiatohusus 2030 aruann e.pdf

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	11
Name of the program or measure	Development of convenient and modern public transport
Objective	Changing behaviour, improvement of transport infrastructure
Quantitative objective	
Brief description	This measure covers improvement of availability of public transport, development of ticket systems and new services.
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	12
Name of the program or measure	Additional increasing of fuel-efficiency of the transport sector
Objective	Improvement of the economy of vehicles
Quantitative objective	
Brief description	This measure covers additional investment to the measure "increasing fuel-efficiency of the transport sector"
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC
Status of implementation of the program or measure	Planned
Period of implementation of the program or measure	2021
A scenario, in which the program or measure has been taken into account	WAM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	
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ional promoting of fuel-efficient driving action of the fuel consumption of vehicles via introducing eco- ing measure covers additional activities for promoting eco-driving. means that additional resources have been planned for evement of additional energy efficiency and saving of additional emissions. Since this is a planned measure, its implementation is not clear yet.
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	14
Name of the program or measure	Additional spatial and land use measures in cities to increase the fuel- efficiency of transport and enhancement of the transportation system
Objective	Shift towards the increase in the use of the public transport and non- motorised means of transport, control/reduction of demand, enhancement of transport infrastructure.
Quantitative objective	
Brief description	This measure covers additional investment for the measure "Spatial and land use measures in cities to increase the fuel-efficiency of transport and enhancement of the transportation system". This means that additional resources have been planned for achievement of additional energy efficiency and saving of additional GHG emissions. Since this is a planned measure, its implementation time is not clear yet.
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information); Planning, Legislation (Regulatory)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC
Status of implementation of the program or measure	Planned
Period of implementation of the program or measure	2021
A scenario, in which the program or measure has been taken into account	WAM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.2.i
Other related NECP 2030 chapters	3.1.1.i
Program or measure number	15
Name of the program or measure	Additional activities for development of convenient and modern public transport
Objective	Improved behaviour (Transport); Improved transport infrastructure (Transport)
Quantitative objective	
Brief description	This measure covers additional activities for improvement of availability of public transport, development of ticket systems and new services.
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	Planned
Period of implementation of the program or measure	2021
A scenario, in which the program or measure has been taken into account	WAM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	https://www.mkm.ee/sites/default/files/180917 energiatohusus 2030 aruanne.pdf

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	16
Name of the program or measure	Establishment of road charges for heavy duty vehicles
Objective	Control/reduction of demand, change in behaviour
Quantitative objective	
Brief description	This measure covers the establishment of the road charges based on the mileage, location, environmental aspects, etc. In June, 2017, the Riigikogu approved the road charges for the vehicles which gross vehicle weight exceeds 3,500 kg (heavy duty vehicles). Since the estimated impact of establishment of the road charges for vehicles on GHG emissions is currently not known, this measure is specified in the report as a planned measure.
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Taxation (Fiscal)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	Planned
Period of implementation of the program or measure	2018
A scenario, in which the program or measure has been taken into account	WAM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	17
Name of the program or measure	Congestion charge in Tallinn
Objective	Control/reduction of demand, enhancement of transport infrastructure, change in behaviour
Quantitative objective	
Brief description	This measure foresees application of the congestion charge in Tallinn. This measure will reduce movement with motor vehicles during rush hours and avoid the congestion-related costs.
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Taxation (Fiscal)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	Provisional
Period of implementation of the program or measure	2021
A scenario, in which the program or measure has been taken into account	WAM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	https://www.mkm.ee/sites/default/files/180917 energiatohusus 2030 aruanne.pdf
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	18
Name of the program or measure	Development of railway infrastructure (incl construction of Rail Baltic)
Objective	Shift towards the increase in the use of the public transport and non- motorised means of transport, control/reduction of demand
Quantitative objective	
Brief description	This measure covers development of the Rail Baltic as well as increasing the speed on Tallinn-Narva and Tapa-Tartu railway lines to 160 km/h.
Related dimensions of the Energy Union	
Sectors affected	Transport
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	Effort Sharing Decision 406/2009/EC; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	Planned
Period of implementation of the program or measure	2021
A scenario, in which the program or measure has been taken into account	WAM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	https://www.mkm.ee/sites/default/files/180917 energiatohusus 2030 aruanne.pdf
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	19
Name of the program or measure	Reconstruction of public sector and business buildings
Objective	Increasing the efficiency of buildings, enhancement of services/tertiary sector, controlling/reduction of the demand
Quantitative objective	
Brief description	Our objective is to reconstruct 20% of the existing buildings by 2030 so that their energy efficiency class will be at least C.
Related dimensions of the Energy Union	
Sector affected	Energy consumption (comprising consumption of fuels and electricity by end users such as households, services, industry and agriculture)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	Energy Performance of Buildings Directive 2010/31/EU; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	KredEx (Companies)
Reference to analysis or technical reports	
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	20
Name of the program or measure	Reconstruction of private residences and apartment buildings
Objective	Increasing the efficiency of buildings, controlling/reduction of the demand
Quantitative objective	
Brief description	Objective of the measure is to reconstruct 40% of the existing residential buildings by 2030 so that their energy efficiency class will be at least C or D and 50% of apartment buildings so that their efficiency class will be at least C.
Related dimensions of the Energy Union	
Sector affected	Energy consumption (comprising consumption of fuels and electricity by end users such as households, services, industry and agriculture)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	Energy Performance of Buildings Directive 2010/31/EU; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	KredEx (Companies)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	21
Name of the program or measure	Establishment of minimum requirements for nearly zero-energy buildings
Objective	Increasing the efficiency of buildings, controlling/reduction of the energy consumption demand
Quantitative objective	
Brief description	The requirements will be applied according to the Energy Efficiency Directive and according to the Regulation "Minimum energy performance requirements" of the Ministry of the Ministry of Economic Affairs and Communications.
Related dimensions of the Energy Union	
Sector affected	Energy consumption (comprising consumption of fuels and electricity by end users such as households, services, industry and agriculture)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Legislation (Regulatory)
European Union legislation underlying the program or measure	Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	22
Name of the program or measure	Additional reconstruction of public sector and business buildings
Objective	Increasing the efficiency of buildings, enhancement of services/tertiary sector, controlling/reduction of the demand
Quantitative objective	
Brief description	Measures resulting in reconstruction of the schoolhouses will be applied. Estimated of additional 25% of school buildings (100% of building stock is ca 2 million m2) will be renovated to energy class C by 2030. Measures resulting in reconstruction of the office buildings will be applied. Estimated of additional 20% of office buildings (100% of building stock is ca 3.3 million m2) will be renovated to energy class level C by 2030.
Related dimensions of the Energy Union	
Sector affected	Energy consumption (comprising consumption of fuels and electricity by end users such as households, services, industry and agriculture)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information); Legislation(Regulatory)
European Union legislation underlying the program or measure	Energy Performance of Buildings Directive 2010/31/EU; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	Planned
Period of implementation of the program or measure	2017
A scenario, in which the program or measure has been taken into account	WAM
Persons or companies responsible for implementation of the program or the measure	KredEx (Companies)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	23
Name of the program or measure	Additional reconstruction of private residences and apartment buildings
Objective	Increasing the efficiency of buildings, controlling/reduction of the energy consumption demand
Quantitative objective	
Brief description	Reconstruction of the detached houses and similar small houses to energy class C will be supported in the framework of this measure. Estimated of additional 10% of residential buildings (100% is ca 26 million m2) will be renovated by 2030. Reconstruction of the apartment buildings to energy class C will be supported in the framework of this measure. Estimated of additional 10% of residential buildings (100% of building stock is ca 34 million m2) will be renovated by 2030.
Related dimensions of the Energy Union	
Sector affected	Energy consumption (comprising consumption of fuels and electricity by end users such as households, services, industry and agriculture)
Greenhouse gases which emissions are directly affected	CO2; CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information)
European Union legislation underlying the program or measure	Energy Performance of Buildings Directive 2010/31/EU; Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	Planned
Period of implementation of the program or measure	2017
A scenario, in which the program or measure has been taken into account	WAM
Persons or companies responsible for implementation of the program or the measure	KredEx (Companies)
Reference to analysis or technical reports	

NECP chapter	3.2.iv
Other related NECP 2030 chapters	
Program or measure number	24
Name of the program or measure	Increasing the quality of network services
Objective	Increasing the energy efficiency
Quantitative objective	An average total duration of interruptions in the distribution system per point of consumption a year, minutes: <90 (2030) Amount of energy not provided in the transmission system: <150 (2030)
Brief description	Increasing the quality of network services (compliance with the requirements of standards EVSEN 50160, EVS-IEC 61000) and determining the liability for causes of disturbances and implementation of actions for eliminating disturbances
Related dimensions of the Energy Union	
Sector affected	Distribution of electricity
Greenhouse gases which emissions are directly affected	
Budget planned	
Expected impact	Increase of the efficiency of the electricity distribution system
Type of the program or measure	Legislation (Regulatory)
European Union legislation underlying the program or measure	Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2017-2030
A scenario, in which the program or measure has been taken into account	
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	https://energiatalgud.ee/img auth.php/1/12/Eesti Arengufond. Elektriv%C3%B5rgu t%C3%A4nane olukord. V%C3%B5imalikud arengustsenaariumid.pdf

NECP chapter	3.2.vi
Other related NECP 2030 chapters	3.3.i
Program or measure number	25
Name of the program or measure	Increasing the percentage of the weatherproof network
Objective	Increasing the energy efficiency
Quantitative objective	Share of the weatherproof network in the distribution system 75% (2030)
Brief description	Replacement of the bar wire overhead lines with weatherproof solutions in the distribution system
Related dimensions of the Energy Union	
Sectors affected	Distribution of electricity
Greenhouse gases which emissions are directly affected	
Budget planned	
Expected impact	Increase in the efficiency of the electrical network
Type of the program or measure	Legislation (Regulatory)
European Union legislation underlying the program or measure	Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2017-2030
A scenario, in which the program or measure has been taken into account	
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	https://energiatalgud.ee/img auth.php/1/12/Eesti Arengufond. Elektriv%C3%B5rgu t%C3%A4nane olukord. V%C3%B5imalikud arengustsenaariumid.pdf
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NECP chapter	3.2.vi
Other related NECP 2030 chapters	
Program or measure number	26
Name of the program or measure	Introduction of the fixed fee for transmission and distribution system as considering the fixed costs of the system operator
Objective	Competitiveness of the final energy price for the consumer, increasing the energy efficiency
Quantitative objective	
Brief description	Introduction of the fixed fee for transmission and distribution system as considering the fixed costs of the system operator
Related dimensions of the Energy Union	
Sectors affected	Distribution of electricity
Greenhouse gases which emissions are directly affected	
Budget planned	
Expected impact	Optimisation of the consumption, increase in the efficiency of the electrical network
Type of the program or measure	Legislation (Regulatory)
European Union legislation underlying the program or measure	Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2017-2030
A scenario, in which the program or measure has been taken into account	
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	https://www3.eurelectric.org/media/268408/network tariffs position paperfinal as-2016-030-0149-01-e.pdf https://elering.ee/avatud- konsultatsioonid#tab1

NECP chapter	3.2.vi
Other related NECP 2030 chapters	
Program or measure number	27
Name of the program or measure	Transition to remote reading system
Objective	Transfer of consumers to the remote reading system
Quantitative objective	All consumers are supplied with remote reading devices by 01.01.2017.
Brief description	Installation of the remote reading meters to all consumers, introduction of remote reading
Related dimensions of the Energy Union	
Sectors affected	Distribution of electricity
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	Increase in the efficiency of the electrical network
Type of the program or measure	Legislation (Regulatory)
European Union legislation underlying the program or measure	Energy Efficiency Directive 2012/27/EU
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2010-2017
A scenario, in which the program or measure has been taken into account	
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	
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NECP chapter	3.3.i
Other related NECP 2030 chapters	3.4.1, 3.4.2, 3.4.3
Program or measure number	28
Name of the program or measure	Synchronisation of the Baltic electricity system with the synchronous areas of Continental Europe
Objective	Synchronisation of the Baltic electricity system to the synchronous areas subordinated to the EU law
Quantitative objective	Estonia is connected with the synchronous area controlled in the European Union (2025)
Brief description	Synchronisation of the Baltic electricity system with the synchronous areas of Continental Europe
Related dimensions of the Energy Union	
Sectors affected	Distribution of electricity
Greenhouse gases which emissions are directly affected	
Budget planned	
Expected impact	Increase in the interconnectivity of the electric systems, increase in the security of supply
Type of the program or measure	Other
European Union legislation underlying the program or measure	
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2018-2025
A scenario, in which the program or measure has been taken into account	
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.5.i
Other related NECP 2030 chapters	
Program or measure number	29
Name of the program or measure	Research and development activities program of the energy development plan
Objective	Supporting implementation of the research and development activities program of the energy via research and development activities
Quantitative objective	
Brief description	Projects and activities that help implementation of the development of the energy sector are implemented within the framework of the program
Related dimensions of the Energy Union	
Sectors affected	All areas of the energy sector
Greenhouse gases which emissions are directly affected	
Budget planned	
Expected impact	
Type of the program or measure	Research and development (Research)
European Union legislation underlying the program or measure	
Status of implementation of the program or measure	Planned
Period of implementation of the program or measure	2019-2022
A scenario, in which the program or measure has been taken into account	
Persons or companies responsible for implementation of the program or the measure	Ministry of Economic Affairs and Communications (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	30
Name of the program or measure	Regulation (EU) No 517/2014
Objective	Reduction of the emissions of fluorinated gas, replacement of fluorinated gases with other substances
Quantitative objective	
Brief description	 Regulation (EU) No 517/2014 on the fluorinated GHGs (which entered into force on 1 January 2015) establishes the action plan for iterative reduction of F-gases by 2030 that will be implemented by application of the permitted units system and prohibitions/restrictions. The most important measures for reducing the fluorinated GHGs emissions indicated in Regulation (EU) No. 517/2014 are as follows: Prohibitions on placing new equipment on the market; Prohibition on service of F-gases which global warming potential is at least 2,500; Requirement to extract gases from discarded equipment; Obligation to certify the companies that handle gas.
Related dimensions of the Energy Union	
Sectors affected	Industrial processes (comprising industrial activities that chemically or physically transform materials leading to greenhouse gas emissions, use of greenhouse gases in products and non-energy uses of fossil fuel carbon)
Greenhouse gases which emissions are directly affected	HFC
Budget planned	
Expected impact	
Type of the program or measure	Regulatory
European Union legislation underlying the program or measure	F-gas Regulation 517/2014; Other EU:EU Directive on MACs 2006/40/EC
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015-2030
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	31
Name of the program or measure	Favouring the offers and use of the renewable energy sources
Objective	More extensive use of renewable energy
Quantitative objective	
Brief description	The main objective of this measure is to support production of heat and electricity from biogas.
Related dimensions of the Energy Union	
Sectors affected	Agriculture; Energy supply (comprising extraction, transmission, distribution and storage of fuels as well as energy and electricity production)
Greenhouse gases which emissions are directly affected	CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information); Rea search and Development (Research)
European Union legislation underlying the program or measure	PaM not related to Union policies
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	0.1.1.1
-	22
Program or measure number	32
Name of the program or measure	Supporting the organic farming
Objective	Reduction of use of fertilisers/manure on the arable land, improved livestock management, more efficient grassland management
Quantitative objective	
Brief description	The objectives of the measure include supporting the competitiveness of organic farming, increasing biological and landscape diversity and maintenance and improvement of the soil fertility and water quality.
Related dimensions of the Energy Union	
Sectors affected	Agriculture
Greenhouse gases which emissions are directly affected	N2O; CO2
Budget planned	
Expected impact	
Type of the program or measure	Legislation (Regulatory)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	33
Name of the program or measure	Supporting the ecological management
Objective	Promotion of introduction and continuous use of green farming methods in agriculture
Quantitative objective	
Brief description	The objectives of the measure include promotion of introduction and continuous use of green farming methods to protect and increase biological and landscape diversity and protect water and soil condition, expand green planning of agriculture and increase the environmental awareness of the producers of the agricultural sector.
Related dimensions of the Energy Union	
Sectors affected	Agriculture
Greenhouse gases which emissions are directly affected	CH4; CO2; N2O
Budget planned	
Expected impact	
Type of the program or measure	Notification (Information); Legislation (Regulatory)
European Union legislation underlying the program or measure	CAP "Health Check" 2008 and the "Set aside" regulation 73/2009
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	34
Name of the program or measure	Environmental sustainability measure of the EU common agricultural policy
Objective	Carbon capture on arable lands
Quantitative objective	
Brief description	The objective of the environmental sustainability measure of the EU common agricultural policy is to reduce the GHG emissions and increase carbon capture on arable lands. The objective of the measure is to make the farms that grow only one crop greener and more sustainable. This measure impacts the agricultural and LULUCF sector.
Related dimensions of the Energy Union	
Sectors affected	Agriculture; Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2; N2O
Budget planned	
Expected impact	
Type of the program or measure	Legislation (Regulatory)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	35
Name of the program or measure	Reduce emissions of the GHG and ammonia of the agricultural sector
Objective	Link 49.6% of the currently used agricultural land with sustainability contracts to reduce the emissions of N2O and CH4 by 2020.
Quantitative objective	
Brief description	The objectives include promotion of use of biomass, production of renewable energy, investments in farm buildings (incl manure storage) and increasing the technological capability of the holdings.
Related dimensions of the Energy Union	
Sectors affected	Agriculture
Greenhouse gases which emissions are directly affected	CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	36
Name of the program or measure	Favouring storage and capture of carbon in the agriculture and forestry
Objective	Reduce cultivation of organic soils and support counselling and training sessions for promoting sustainable agricultural management.
Quantitative objective	
Brief description	The Estonian rural life action plan 2014-2020 emphasises support for the intention to link 14.8% of the currently used agricultural and woodland with the carbon capture enhancement agreements by 2020 with the aim to reduce cultivation of organic soil and support counselling and training session for promoting sustainable agricultural management.
Related dimensions of the Energy Union	
Sectors affected	Agriculture; Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	37
Name of the program or measure	Introduction of efficient fertilisation technologies
Objective	Avoiding and reducing nitrogen leaching and drainage
Quantitative objective	
Brief description	The objective is to introduce efficient fertilisation technologies to reduce and avoid nitrogen leaching and drainage.
Related dimensions of the Energy Union	
Sectors affected	Agriculture
Greenhouse gases which emissions are directly affected	N2O; CO2
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information); Research and Development (Research)
European Union legislation underlying the program or measure	Nitrate Directive 1991/676/EEC
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015-2021
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	38
Name of the program or measure	Reduction of pollution from nutrients produced in the agricultural sector
Objective	To avoid and reduce contamination of water from agricultural production with nitrogen
Quantitative objective	
Brief description	The objective of the measure is to repair the manure and silo storages, support promotion of the use of green manure spreading technologies, support promotion of the best agricultural practices.
Related dimensions of the Energy Union	
Sectors affected	Agriculture
Greenhouse gases which emissions are directly affected	N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Notification (Information); Rea search and Development (Research)
European Union legislation underlying the program or measure	Nitrate Directive 1991/676/EEC
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2015-2021
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	39
Name of the program or measure	Reduction of amount landfilled
Objective	Expansion of recycling, more efficient management of landfills, smaller amount of waste landfilled
Quantitative objective	
Brief description	
Related dimensions of the Energy Union	
Sectors affected	Waste management/waste
Greenhouse gases which emissions are directly affected	CH4
Budget planned	
Expected impact	
Type of the program or measure	Planning
European Union legislation underlying the program or measure	Landfill Directive 1999/31/EC
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2014-2030
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	40
Name of the program or measure	Avoid and reduce waste generation, including reduce hazardousness of the waste
Objective	Expansion of recycling, more efficient management of landfills, smaller amount of waste landfilled
Quantitative objective	
Brief description	The general objective of the measure is to improve resource efficiency of Estonian economy and enhance avoidance of waste generation to reduce negative impacts on environment and health of people. The state will support avoidance of waste generation via dissemination of information Application of this measure includes different initiatives, application of environmental management actions, conducting additional research, investments and supplementation of necessary legislation.
Related dimensions of the Energy Union	
Sectors affected	Waste management/waste
Greenhouse gases which emissions are directly affected	CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Regulatory
European Union legislation underlying the program or measure	PaM not related to Union policies
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	41
Name of the program or measure	Taking the waste to recycling and reuse to the greatest extent possible
Objective	To reduce the amount of waste landfilled, expansion of recycling, more efficient management of landfills
Quantitative objective	
Brief description	Setting of this strategic objective aims at increasing the share of the recyclable municipal waste and biodegradable waste in the total volume of solid waste and develop the cross-national waste collection network with more efficient reporting information system. Consistent guiding on the waste recycling and reuse and simple expanding waste treatment system help increase the amount of separately collected waste and reduce the amount of waste landfilled. Creation of national network of biodegradable waste collection and processing is especially important for reducing GHG emissions from landfilling solid waste.
Related dimensions of the Energy Union	
Sectors affected	Waste management/waste
Greenhouse gases which emissions are directly affected	CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Planning
European Union legislation underlying the program or measure	PaM not related to Union policies
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	42
Name of the program or measure	Reduction of the environmental risk from the waste and enhancement of monitoring and management
Objective	More efficient landfill management, waste treatment technologies, monitoring and supervision
Quantitative objective	
Brief description	The general objective of the measure is to supplement options of methods used for treatment of hazardous waste and reduce environmental risks from landfilling waste. Closed landfill should be duly maintained. Strengthening the supervision over waste treatment helps reduce illegal landfilling.
Related dimensions of the Energy Union	
Sectors affected	Waste management/waste
Greenhouse gases which emissions are directly affected	CH4
Budget planned	
Expected impact	
Type of the program or measure	Planning
European Union legislation underlying the program or measure	PaM not related to Union policies
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	43
Name of the program or measure	Prohibition of percentage of biodegradable waste going to landfills and increasing the volume of taking the waste materials to recycling
Objective	Reduction of volume of waste landfilled, Expansion of recycling
Quantitative objective	
Brief description	This measure supports reduction of share of biodegradable waste in landfilled waste and expansion of recycling of municipal waste, including creation of national waste collection network.
Related dimensions of the Energy Union	
Sectors affected	Waste management/waste
Greenhouse gases which emissions are directly affected	CH4; N2O
Budget planned	
Expected impact	
Type of the program or measure	Planning; Legislation (Regulatory)
European Union legislation underlying the program or measure	Landfill Directive 1999/31/EC
Status of implementation of the program or measure	#VALUE!
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	44
Name of the program or measure	Increasing the net increment of forests for alleviating the climate changes and capability of carbon capture via timely reforestation
Objective	Carbon storage in existing forests, increasing of production in existing forests
Quantitative objective	
Brief description	General objective of this measure is to support activities related to timely reforestation to alleviate the climate changes.
Related dimensions of the Energy Union	
Sectors affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013); Other EU: The EU Forest Strategy (1998); Other EU: Communication on a new EU Forest Strategy (COM(2013)659)
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2011-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	45
Name of the program or measure	Promoting reforestation of the managed private forests with the habitat type compatible tree species
Objective	Carbon storage in existing forests, increasing of production in existing forests, more extensive management of forests
Quantitative objective	
Brief description	This measure will ensure availability of tree species matching the habitat type with the aim to favour efficient and quick reforestation of private forests
Related dimensions of the Energy Union	
Sectors affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013); Other EU: The EU Forest Strategy (1998); Other EU: Communication on a new EU Forest Strategy (COM(2013)659)
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2011-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	46
Name of the program or measure	Improvement of the forest health and avoiding dispersion of dangerous negative factors
Objective	Strengthening of protection against natural disasters, carbon storage in existing forests
Quantitative objective	
Brief description	This measure will support monitoring of forests and reforestation to improve the health of forests and avoid damages caused by fires, pests and storms.
Related dimensions of the Energy Union	
Sectors affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013); Other EU: The EU Forest Strategy (1998); Other EU: Communication on a new EU Forest Strategy (COM(2013)659)
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2011-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	47
Name of the program or measure	Reduction of environmental impacts related to the use of fossil fuels and non-renewable natural resources by increasing the Estonian timber production and use
Objective	Increasing the selection of timber products, replacement of parent compounds and materials causing GHGs with timber products
Quantitative objective	
Brief description	The objective of the measure is to encourage production and use of timber by the means of relevant activities in Estonia
Related dimensions of the Energy Union	
Sectors affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic); Legislation(Regulatory)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013); Other EU: The EU Forest Strategy (1998); Other EU: Communication on a new EU Forest Strategy (COM(2013)659)
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2011-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	48
Name of the program or measure	Natura 2000 support for private forest estates
Objective	Carbon storage in existing forests
Quantitative objective	
Brief description	Protected areas, conservation areas and spreads of protected species on the woodland help preserve the carbon reserve from these forests. The objective of this measure is to maintain the biological and landscape diversity of the area belonging to the forest-covered Natura 2000 network which means supporting the woodlands in private possession.
Related dimensions of the Energy Union	
Sectors affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	49
Name of the program or measure	Increasing the economic and ecological viability of the forests
Objective	Carbon storage in existing forests
Quantitative objective	
Brief description	The general objective for supporting the forestry as an integral part of the country life is to ensure sustainable and efficient management of forests that favours increasing the viability of forests via improvement of the composition of species or application of other forestry methods, preservation of the biological diversification of forests and reforestation, integral eco-system and protection functions by helping maintain the multi-purpose role of forests and intangible and cultural heritage.
Related dimensions of the Energy Union	
Sectors affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	0.1.1.1
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Program or measure number	50
Name of the program or measure	Supporting growing of local plant varieties
Objective	Carbon storage, reduction of GHG emissions
Quantitative objective	
Brief description	This measure helps preserve crop varieties more suitable for local conditions (more resistant to the diseases and climatic conditions of the area) and creates so good pre-requisites for developing varieties and supports organic farming.
Related dimensions of the Energy Union	
Sectors affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2; N2O
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	51
Name of the program or measure	Supporting regional soil protection
Objective	Reduction of GHG emissions, carbon storage on the arable land
Quantitative objective	
Brief description	The objective of the measure is to limit the GHG emission, restrict soil erosion, reduce washout of the nutrients from the soil and maintain and increase the organic matter content.
Related dimensions of the Energy Union	
Sectors affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	52
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Name of the program or measure	Crop diversification (measure of EU common agricultural policy)
Objective	Reduction of GHG emissions, carbon storage on the cropland
Quantitative objective	
Brief description	Measure of the crop diversification is one of the environmental sustainability measures handled in the joint agricultural policy. The objective of the measure is to make the farms that grow one crop greener and more sustainable.
Related dimensions of the Energy Union	
Sector affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	
Type of the program or measure	Legislation (Regulatory)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2015-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	
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NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	53
Name of the program or measure	Supporting maintenance of semi-natural habitats
Objective	Reduction of GHG emissions, carbon storage on the grassland
Quantitative objective	
Brief description	The general objectives of the measure include increasing the quality of maintenance of semi-natural habitats by increasing the share of the semi-natural habitats maintained by livestock at the same time with the aim to maintain and increase biological and landscape diversity, increase the scope of the maintained land, improve the situation of the species related to the semi-natural habitats.
Related dimensions of the Energy Union	
Sectors affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	CAP Reform 2013 regulations: Rural Development (1305/2013), 'Horizontal' issues (1306/2013), Direct payments (1307/2013) and Market measures (1308/2013)
Status of implementation of the program or measure	Implemented (Adopted or Expired)
Period of implementation of the program or measure	2014-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of Rural Affairs (Government of the Republic)
Reference to analysis or technical reports	

NECP chapter	3.1.1.i
Other related NECP 2030 chapters	
Program or measure number	54
Name of the program or measure	Securing protection of habitats
Objective	Reduction of GHG emissions, carbon storage
Quantitative objective	
Brief description	The objective of the measure is to increase the protection of at least 14 habitat types in Estonia by implementing the protection measures. As the result of the activities of this measure, 10,000 hectares of fen and mesotrophic mire habitats and oligotrophic mire border areas are recovered (laggs, mesotrophic and swamp forests, damaged but recoverable bogs, swamps that have lost their value that still can be recovered naturally) on the protected areas.
Related dimensions of the Energy Union	
Sector affected	Land use, land-use change and forestry
Greenhouse gases which emissions are directly affected	CO2; CH4
Budget planned	
Expected impact	
Type of the program or measure	Direct support (Economic)
European Union legislation underlying the program or measure	Water Framework Directive 2000/60/EC
Status of implementation of the program or measure	In progress (Implemented)
Period of implementation of the program or measure	2012-2020
A scenario, in which the program or measure has been taken into account	WEM
Persons or companies responsible for implementation of the program or the measure	Ministry of the Environment (Government of the Republic)
Reference to analysis or technical reports	

ANNEX V TAKING THE REQUIREMENTS OF REGULATION (EU) 2018/1999 IN SETTING THE GENERAL OBJECTIVE OF ESTONIAN ENERGY EFFICIENCY

Development of this annex is still in progress, the latest document is available at <u>https://pilv.mkm.ee/s/FgfIpcNA3HI7hAm</u>