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Elaboration of development scenarios

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INTRODUCTION

“National Energy and Climate Plan 2021-2030” (NECP2030) was announced and announced at the meeting of the State Secretaries on 14 November 2019.

The updated NECP2030 was submitted to the State Chancery and the Cabinet meeting on 23 January 2020. NECP2030 was approved and entered into force on 4 February 2020.

However, significant changes are already underway, which will be further reinforced by the European Union's (EU) Development Strategy, endorsed at the end of 2019, entitled “The European Green Deal” and the comprehensive package of measures contained therein, with the long-term objective of achieving EU climate neutrality by 2050.

In the light of the above mentioned, it is necessary to see only development scenarios up to 2030 at the moment, but to look in the long term, up to 2050.

Currently, the long-term Latvian energy modelling system is being developed within the framework of the project, taking into account both the Latvian Energy and Climate Plan 2030 and the binding EU strategies and regulatory requirements.

Additionally, it will certainly be important to understand the real extent of the impacts of COVID-19 and how it will affect the energy balance of 2020 and the macroeconomic parameters that are taken into account in the modelling process.

1. SCOPE OF THE POLICY DOCUMENTS

Both global and local policy documents have been taken into account to create the report.

1.1. Global Framework - Paris Agreement

The Paris climate agreement is the first global legally binding global climate agreement. It was signed on 22 April 2016 and ratified by the European Union on 5 October 2016.

The Paris Agreement is an international treaty aimed at strengthening global action to tackle climate change:

- a) Limiting global average temperature increases well below the 2 °C mark compared to pre-industrial levels and aiming to limit temperature rises to 1.5 °C compared to pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change
- b) improving the capacity to adapt to the adverse effects of climate change and promoting climate resilience and development characterised by low greenhouse gas emissions, in such a way as not to endanger food production;
- c) Adapting financial flows to lower greenhouse gas emissions and climate resilient development.

1.2. European framework

The European Union is a leader in the field of long-term and sufficiently ambitious energy and climate objectives in the world. The main planning documents are as follows:

- ✓ The European Union's road map towards low carbon development (LCD);
- ✓ Roadmap for moving towards a competitive low carbon economy in 2050
- ✓ 2030 European Climate and Energy Policy Framework
- ✓ EU LCD Strategy Proposal¹

The European Green Deal, with its plans for energy and climate financing, is the key.

1.2.1. European Green Deal

On 11 December 2019, the European Commission issued a communication on the European Green Deal (EGD), which will become a roadmap for making the EU economy sustainable. Sustainability will be achieved by transforming climate and environmental challenges into opportunities in all policy areas and ensuring that change is fair and inclusive for all citizens [1]. The activities of the agricultural sector will be critical to ensuring the transition to carbon neutral and sustainable development. The Common Agricultural Policy (CAP) aims to achieve traceable development, the “Field to Table” strategy will be an important element in the EU's climate and environmental and biodiversity objectives [2].

The long-term climate neutrality of the EU has been endorsed by both the European Parliament and the Council of the EU. The European Green Deal has eight policies: Clean Energy, Sustainable Industry, Construction and Renewal, Sustainable Mobility, Biodiversity, From Field to Table, Pollution Prevention and Climate Policy. In order to ensure the achievement of the long-term objectives of the European Green Deal, the European Commission (EC) has

¹ https://ec.europa.eu/clima/policies/strategies/2050_en

prepared a proposal for an EU climate regulation, considering that an EU act of direct application will be the most appropriate for the Member States to contribute.²

1.3. Latvian framework

1.3.1. Latvia's Sustainable Development Strategy to 2030

Innovation and the transition to the creation of low-carbon and energy-intensive goods and services, the use of renewable energy sources and technological development, healthy food and ecosystem services marks the transition to a “green economy”³.

Energy security and independence, the use and innovation of renewable energy sources, energy efficiency measures and energy efficiency and environmentally friendly transport policies are highlighted as the most important emphasis in the content of Chapter 4 – Innovative and eco-efficient economies.

1.3.2. Information report Long-term Energy Strategy 2030 – Competitive Energy for Society

In order to reduce imports of energy sources (e.g. fossil fuels, natural gas) and to promote local energy production, the 2030 Strategy also focuses on promoting the use of RES in electricity and heat generation and the transport sector. Latvia aims to reach a 40% share of energy produced from renewable energy sources in gross final energy consumption by 2020. Introducing market-based, technologically neutral support and ensuring adequate taxation and emissions trading policies will reach a non-binding 50% RES threshold for gross final energy consumption by 2030.⁴

1.3.3. Latvia's bioeconomy strategy 2030

The strategy includes Energy section, which describes the use of bio-resources for energy production.⁵ In Latvia, bioresources are mainly used for the production of thermal energy by burning them. Although the production of thermal energy is an important area of energy production and has favourable market conditions for such production, it is a low value-added production. In the future, greater added value from bioresources needs to be promoted. Biofuel production is generally considered to be a transitional resource while vehicle electrification develops. At the same time, in the future biofuels could be used in cases where electrification is difficult to introduce.

The share of renewable energy resources in gross final energy consumption in Latvia in 2015/2016 was 37.6% (target of 40% in 2020 and target of 20% in EU-28). The largest contribution to Latvia's RES target structure in 2015 was made by 76.49% (47.76 PJ) by solid or wood biomass, provided by the use of biomass in energy production (representing 28.73% of the country's gross final consumption). It is followed by hydropower of 16,87% (10,53 PJ), biogas with 4.27% (2.67 PJ) and biofuels of 1.53% (0.95 PJ). Thus, in 2015 bioenergy, with a total of

² Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing the framework for achieving climate neutrality and amending Regulation (EU) 2018/1999 (European Climate Law), Brussels, 4.3.2020 COM(2020) 80 final, 2020/0036 (COD), European Commission.

³ Latvia's Sustainable Development Strategy to 2030, https://www.pkc.gov.lv/sites/default/files/inline-files/Latvija_2030_7.pdf

⁴ Ministry of Economy, Information report Latvian Energy Long-Term Strategy 2030 – Competitive Energy for Society, p. 12, points 21-34, 16.05.2013, <http://tap.mk.gov.lv/mk/tap/?pid=40263360>

⁵ Latvia's bioeconomy strategy 2030, section 2.6, https://www.llu.lv/sites/default/files/2018-07/Bioeconomy_Strategy_Latvia_LV.pdf

51,38 PJ, represented 82.29% of the contribution (mainly solid biomass in heating) to the current RES target. In line with Latvia's long-term Energy Strategy 2030, the national indicative target for renewable energy is 50% in 2030.

1.3.4. Strategy for the low-carbon development of Latvia by 2050 (LCD)

The objectives of the LCD Strategy refer to the Energy Efficiency chapter of the National Development Plan for 2014-2020, which also refers to the transition to renewable energy, a stable and flexible energy system that combines efficient production of high-capacity energy with small-scale energy production supported by the development of smart grids.

Among the tasks of LCD are the reduction of transport GHG emissions and the gradual transition from fossil to renewable energy sources and the introduction of alternative means of transport; Ensure the deployment of innovative and renewable energy technologies to fully abandon fossil energy use.⁶

1.3.5. Latvia's strategy to achieve climate neutrality by 2050

The strategy is a long-term policy planning document designed to boost the economic competitiveness of the Latvian economy at the same time as limiting and reducing climate change, as well as ensuring a safe living environment for Latvian residents.

The strategy is planned to be implemented as broadly as possible, faster and more effectively, thus meeting international objectives and improving the quality of life of citizens and strengthening the competitiveness of the Latvian economy by taking such measures:

- ✓ Raising energy efficiency;
- ✓ promoting the use of local (renewable) energy sources;
- ✓ circular economy and bioeconomy, contributing to the development and production of climate technology innovations in Latvia.

The strategy is a long-term strategic document that is intended to be implemented by integrating horizontally the GHG and climate sustainability objectives across all sectors of the economy.

In parallel with the implementation of the Strategy, it is planned to provide periodic assessments of the progress and effectiveness of the Strategy, ensuring that the objectives of the Strategy are achieved.

⁶ Strategy for the low-carbon development of Latvia by 2050, <http://tap.mk.gov.lv/mk/tap/?pid=40462398>

2. NECP2030 STRUCTURE AND FRAMEWORK

The current scope of development scenarios is based on the horizontal measures and action lines envisaged by the NECP2030, as well as on specific key objectives to be achieved.

Horizontal measures approved by the NECP2030 (total 14):

- 1) H1 Comprehensive implementation and realization (application) of the “energy efficiency first” principle;
- 2) H2 Expanding EEOS to make a significant contribution to the implementation of energy efficiency improvement measures for large energy suppliers and energy consumers;
- 3) H3 Strengthening agreements on energy efficiency, the use of RES and the promotion of energy efficiency services and simultaneous support for the conclusion and implementation of agreements;
- 4) H4 Improve the energy savings accounting system, monitoring and reporting of the measures taken;
- 5) H5 Encourage the production of biogas and biomethane and the use of biomethane;
- 6) H6 Ensure the full functioning of the proof of origin system;
- 7) H7 Accelerate and simplify the procedures for the deployment of RES technologies (including authorisations) and ensure public benefits from RES projects;
- 8) H8 Promote the acquisition of funding needed to promote the use of RES and improve energy efficiency;
- 9) H9 Assessing the possibility of introducing trade in energy savings;
- 10) H10 To carry out research on the use of RES available in Latvian territorial waters and geothermal waters for energy extraction (excluding wind energy), including research on the development of infrastructure;
- 11) H11 Extension of the Energy and Climate Council;
- 12) H12 Comprehensive implementation and application of the social dimension in energy and climate policy;
- 13) H13 Develop a solution for the number of power supply systems to be connected in parallel;
- 14) H14 Developing research programmes to stimulate the research needs to achieve energy and climate objectives.

Action directions approved by NECP2030 (total 12):

- 1) AD1 Improving the energy performance of buildings;
- 2) AD2 Improving energy efficiency and promoting the use of RES technologies in heating and cooling, and industry;
- 3) AD3 Promoting the use of non-emission technologies in electricity generation;
- 4) AD4 Economically justified energy self-production, self-consumption and energy communities’ promotion;
- 5) AD5 Improving energy efficiency, promoting the use of alternative fuels and RES technologies in transport;
- 6) AD6 Energy security, reducing energy dependency, fully integrating energy markets and modernising infrastructure;
- 7) AD7 Improving the efficiency of waste and waste water management and reducing GHG emissions;
- 8) AD8 Efficient use of resources and reduction of GHG emissions in agriculture;
- 9) AD9 Sustainable use of resources and reduction of GHG emissions and increasing CO₂ capture in land use, land use change and forestry;

- 10) AD10 Promoting the reduction of the use of fluorinated greenhouse gases (F-gases);
- 11) AD11 Improving the “greening” and attractiveness of the tax system for energy efficiency and RES technologies;
- 12) AD12 Public awareness, education and awareness-raising.

NECP2030 is based on the following five key elements:

- 1) Decarbonisation
 - a) GHG emissions and CO₂ capture
 - b) RES energy
- 2) Energy efficiency:
 - a) The contribution of Latvia to the EU energy efficiency target
 - b) Long-term strategy for the renovation of buildings, optional interim targets
- 3) Energy security
 - a) Diversification of energy sources and energy supplies from third countries;
 - b) Reduction of energy imports
 - c) Increasing the flexibility of the energy system
- 4) The internal energy market
 - a) Interconnection of electricity networks
 - b) Energy transmission infrastructure
 - c) Market integration
- 5) Research, innovation and competitiveness
 - a) Research and development and innovation
 - b) Promoting clean energy technologies for 2050

2.1. NECP2030 objectives

Key binding targets and performance indicators for 2030 in the context of energy and climate by NECP2030 are as follows:

- 1) GHG reduction target in 2030: **-65% against GHG level in 1990;**
- 2) Accrued final energy savings in 2030: **1,76 Mtoe.**

Table 1 summarises NECP2030, as well as the results of EU and Latvian policies and their main results (using the dimensions⁷ of the Energy Union (EnU)).

Table 1

The goals of EU and Latvia's (using EnU dimensions) energy and climate policy

Policy outcome for each dimension of the Plan	EU		Latvia		
	Target value		Actual value	Target value ⁸	
	2020 ⁹	2030 ¹⁰	2017	2020	2030
1.1. GHG reduction target (% versus 1990)	-20	-40	-57	-	-65
1.1.2. LULUCF accounting categories (million t.) ¹¹	-	0	-	0	-3,1

⁷ Article 1(2) of Regulation 2018/1999

⁸ the normal script contains already existing targets, which are set out in binding EU legislation, other Latvian policy planning documents or legislation, *italics highlighting the indicative targets identified in the Plan*, **bold marks the binding targets to be set in the Plan.**

⁹ CEP2020 and underlying EU legislation or CEPF2030

¹⁰ CEPF2030 and underlying EU legislation

¹¹ GHG emission reduction and CO₂ capture target LULUCF accounting categories in 2030

Policy outcome for each dimension of the Plan	EU		Latvia		
	Target value		Actual value	Target value ⁸	
	2020 ⁹	2030 ¹⁰	2017	2020	2030
1.1.3. Reductions in GHG emissions from the transport energy life cycle (%)	6	6	0,8	6	≥6
1.2. Energy produced from the share of RES in gross final energy consumption (%)	20	32	39	40	50
1.3. Share of energy produced from RES in gross final energy consumption in transport (%)	10	14	2,5	10	7 ¹²
1.4. Share of modern biofuels & biogas ¹³ in gross final energy consumption in transport (%)	-	3,5	0	-	3,5
2.1. National mandatory target - accrued final energy savings (Mtoe)	-	-	0,45	0,85	1,76
2.2. Building renovation objective (total renovated, m ²)	-	-	398 707	678 460	500 000
3. Share of imports in gross domestic energy consumption (including bunching) (%)	-	-	44,1	44,1	30-40
4. Interconnection capacity (% against installed generating capacity)	10	15	60	10	60
5.1. R & D investments (% of GDP)	3	-	0,51	0,7	>2
5.2. Global competitiveness index (world ranking)	-	-	42	-	higher than 42

Overall horizontal measures and action directions of NECP2030 are aimed at reducing GHG emissions and increasing energy efficiency. It is also supported by combining different potential financial sources.

2.2. NECP2030 possible funding

Possible funding to implement NECP2030 measures is planned from different sources:

- EU Structural Funds;
- National budget, including the Modernisation fund, EKII¹⁴;
- The budget of municipalities (local governments), including co-financing of municipal budgets;
- Private funding.

The amount of funding currently marked by sector and the planned measures is covered in the following sub-sections.

¹² The objective is to be achieved by imposing an obligation on fuel suppliers which may use modern biofuels and/or biogas produced from raw materials listed in Annex IX to Directive 2018/2001, electricity from RES, hydrogen derived from RES, recycled carbon fuels, and other biofuels or biomass fuels not produced from food or animal feed crops

¹³ Modern biofuels & biogas must be produced from raw materials referred to in Annex IX, Part A, to Directive 2018/2001, such as manure, sewage sludge, straw, miscellaneous waste, etc.

¹⁴ Instrument for auctioning emission allowances

2.2.1. Commercial and public sector

Table 2

No.	Activity	Deadline ¹⁵	Possible funding (EUR) ¹⁶ , its sources
1.1.	Continue to promote energy efficiency improvements in public buildings	31.12.2022	~ 300 million. Source: EU Structural Funds National budget, including EKII Local government budget, including co-financing of municipal budgets Private funding
1.2.	Continue to support the introduction of energy efficiency improvement measures in municipal public buildings	31.12.2022	~ 100 million. Source: EU Structural Funds National budget, including EKII Local government budget, including co-financing of municipal budgets
	Promoting the use of solar energy in electricity generation	31.12.2023	~ 15 million. EUR Source: EU Structural Funds National budget, including EKII Private funding
	Promote the use of RES and the improvement of energy efficiency in local heating (LH) and individual heating Implement and promote local and individual refrigeration systems	31.12.2022	~ 267 million. Source: EU Structural Funds National budget, including EKII, Modernisation fund Local government budget, including co-financing of municipal budgets Private funding

Total planned finance in commercial and public sector: ~ 682 million EUR.

At present, 4.5 million have been approved for emergency purposes. EUR for municipal buildings already in 2020¹⁷.

2.2.2. Industrial sector

Table 3

No.	Activity	Deadline ¹⁸	Possible funding (EUR) ¹⁹ , its sources
	Promoting the use of RES and improving energy efficiency in industry and economic operators Customize DHS for refrigeration in buildings	31.12.2022	~ 225 million. Source:

¹⁵ After the deadline for the execution of the measure, the measure shall be implemented or applicable throughout the coverage period of the Plan unless otherwise specified.

¹⁶ For the period of implementation of the measure

¹⁷ <https://likumi.lv/ta/id/314859-ministru-kabineta-sedes-attalinata-veida-protokols>

¹⁸ After the deadline for the execution of the measure, the measure shall be implemented or applicable throughout the coverage period of the Plan unless otherwise specified.

¹⁹ For the period of implementation of the measure

No.	Activity	Deadline ¹⁸	Possible funding (EUR) ¹⁹ , its sources
			<i>EU Structural Funds National budget, including Modernisation fund National budget Local government budget, including co-financing of municipal budgets Private funding</i>
7.1.	Review, within the framework of tax guidelines, the rates of the natural resources tax and the conditions for their application	31.12.2021 31.12.2021 31.12.2023 21.12.2025	Within the existing budget

Total planned finance in the industrial sector is ~ 225 million EUR.

2.2.3. Residential sector

The State aid programme for improving energy efficiency of multi-apartment houses across Latvia has submitted an application of 821 projects for an estimated amount of **€375 million** since the beginning of the programme in spring 2016. As a consequence, all the funds provided for in the programme for grants are reserved and no new applications for participation in the programme will be accepted by the Development Finance Authority ALTUM, as of 11 January of this year.

In the next phase of the programme, by the end of 2023, an evaluation of the projects submitted will take place, granting grants, selecting suppliers, including builders, and implementing house renovation. The construction work for all projects must be completed by 30 June 2023.

At present, EUR 75 million is planned to avoid a gap between the previous and future support programmes for households²⁰, as well as EUR 2.3 million for private houses.

Table 4

No.	Activity	Deadline ²¹	Possible funding (EUR) ²² , its sources
	Continue to promote energy efficiency improvements in residential buildings	31.12.2022	~ 1,2 billion. <i>Source: EU Structural Funds National budget, including EKII Local government budget, including co-financing of municipal budgets Private funding</i>
	Implement energy efficiency improvement measures in private houses or small building complexes, and promote efficient use of resources	31.12.2022	~ 100 million. <i>Source: National budget, including EKII, Modernisation fund</i>

²⁰ <https://em.gov.lv/lv/jaunumi/27825-daudzdzivoklu-maju-renovacija-efektivs-atbalsta-mehanismi-atrai-covid-19-radito-ekonomisko-seku-mazinasana>

²¹ After the deadline for the execution of the measure, the measure shall be implemented or applicable throughout the coverage period of the Plan unless otherwise specified.

²² For the period of implementation of the measure

No.	Activity	Deadline ²¹	Possible funding (EUR) ²² , its sources
			<i>Local government budget, including co-financing of municipal budgets Private funding</i>
	Laying down conditions for the installation of RES technologies in the performance of energy performance measures for buildings	31.12.2022	Within the existing budget
	Provide investment links to energy efficiency measures for buildings	31.12.2025	~ 30 million. <i>Source: EU Structural Funds National budget, including EKII Local government budget, including co-financing of municipal budgets Private funding</i>
2.4.	Promote the use of RES and the improvement of energy efficiency in local heating (LH) and individual heating Implement and promote local and individual refrigeration systems	31.12.2022	~ 267 million. <i>Source: EU Structural Funds National budget, including EKII, Modernisation fund Local government budget, including co-financing of municipal budgets Private funding</i>

Total planned finance in residential sector: 1.57 billion EUR.

1.2.4. Power sector

Table 5

No.	Activity	Deadline ²³	Possible funding (EUR) ²⁴ , its sources
2	Promoting the use of RES and improving energy efficiency in district heating Customize DHS for refrigeration in buildings	1) 31.12.2022	~550 million.
		2) 31.12.2023	<i>Source: EU Structural Funds National budget, including Modernisation fund</i>
		3) 31.12.2023	<i>Local government budget, including co-financing of municipal budgets Private funding</i>
		4) 31.12.2022	Within the existing budget
		5) 31.12.2025	~ 1 million. <i>Source: EU Structural Funds National budget, including EKII Local government budget, including co-financing of municipal budgets Private funding</i>

²³ After the deadline for the execution of the measure, the measure shall be implemented or applicable throughout the coverage period of the Plan unless otherwise specified.

²⁴ For the period of implementation of the measure

		6) 31.12.2021	~ 60 million.
		7) 31.12.2022	
		31.12.2022	~10 thousand.
		01.07.2021	Within the existing budget
3.2.	Implement transnational projects for offshore wind parks (in cooperation with Lithuania/Estonia)	31.12.2030	~750 million. <i>Source:</i> <i>EU Structural Funds – Connecting Europe Facility,</i> <i>Projects of Common Interest</i> <i>Innovation fund</i> <i>Private funding</i>
3.3.	Review the territorial, construction regulation and land use restrictions conditions for the development of RES technologies.	31.12.2022	~ 100 thousand. <i>Source:</i> <i>National budget</i> The question regarding additional financing from the implementation of National budget activities is discussed in the drafting and examination process of the draft law regarding the National budget for the current year and in accordance with the financial possibilities of the National budget.
3.4.	Develop a conceptual solution for the development of land wind parks (wind energy production)	1) 31.12.2021 2) 31.12.2022 3) 31.12.2021	Within the existing budget
3.5.	Promote the marketing of RES electricity	1) 01.01.2021 2) 01.07.2021 3) 01.07.2021 4) 31.12.2022	Within the existing budget
3.6.	Support the development of innovative and energy-efficient solutions to increase the share of RES in the energy system (electricity, heating, cooling)	31.12.2030	~ 291,9 million. <i>Source:</i> <i>EU Structural Funds</i> <i>National budget, including EKII</i> <i>National budget</i> <i>Private funding</i>
3.7.	Implement transnational projects for offshore wind parks (in cooperation with Lithuania/Estonia)	31.12.2030	~750 million. <i>Source:</i> <i>EU Structural Funds – Connecting Europe Facility,</i> <i>Projects of Common Interest</i> <i>Innovation fund</i> <i>Private funding</i>
3.8.	Review the territorial, construction regulation and land use restrictions conditions for the development of RES technologies.	31.12.2022	~ 100 thousand. <i>Source:</i> <i>National budget</i> The question regarding additional financing from the implementation of National budget activities is discussed in the drafting and examination process of the draft law regarding the National budget for the

			current year and in accordance with the financial possibilities of the National budget.
3.9.	Develop a conceptual solution for the development of land wind parks (wind energy production)	1) 31.12.2021 2) 31.12.2022 3) 31.12.2021	Within the existing budget
3.10.	Promote the marketing of RES electricity	1) 01.01.2021 2) 01.07.2021 3) 01.07.2021 4) 31.12.2022	Within the existing budget
3.11.	Support the development of innovative and energy-efficient solutions to increase the share of RES in the energy system (electricity, heating, cooling)	31.12.2030	~ 291,9 million. <i>Source:</i> <i>EU Structural Funds</i> <i>National budget, including EKII</i> <i>National budget</i> <i>Private funding</i>

Total planned finance in power sector: 1.653 billion EUR.

1.2.5. Agricultural sector

Table 6

No. Activity	Outcome of action	Deadline ²⁵	Possible funding (EUR) ²⁶ , its sources
Encourage the production of biogas and biomethane and the use of biomethane	1. The relevant legislation has been developed to ensure, within the framework of EU structural funds or other sources of funding, the installation of biogas production and, at the same time, biogas treatment plants (biomethane production) on agricultural holdings (cluster 1 holdings: indicative 35% dairy cows, 50% other bovine animals, 15% swine and 20% poultry in 1. in cluster holdings) where the collection of biogas (production of biogas) does not yet take place.	31.12.2022	~ 30 million. <i>Source:</i> <i>EU Structural Funds</i> <i>National budget, including Modernisation fund</i> <i>Private funding</i>
	2. Relevant legislation has been developed to ensure the installation of biogas treatment plants (biomethane production) within the framework of EU structural funds or other sources of funding after 2021.	31.12.2022	~ 50 million. <i>Source:</i> <i>EU Structural Funds</i> <i>National budget, including Modernisation fund</i> <i>Private funding</i>
	3. Appropriate legislation has been developed to ensure the development of the infrastructure necessary for the use of biomethane in transport or in fixed combustion	31.12.2022	~ 50 million. <i>EU Structural Funds, including</i>

²⁵ After the deadline for the execution of the measure, the measure shall be implemented or applicable throughout the coverage period of the Plan unless otherwise specified

²⁶ For the period of implementation of the measure

	plants during the period after 2021 under the EU Structural Funds and other sources of funding		<i>the Connecting Europe Facility National budget, including Modernisation fund</i>
Promoting the use of RES technologies in agricultural holdings	1. Appropriate legislation has been developed to mobilise EU agricultural funding for the installation of energy-efficient non-emission technologies, including storage facilities, on farms after 2021.	31.12.2023	~ 2 million. <i>Source: EU Structural Funds - Common Agricultural Policy Private funding</i>

Total planned finance in agriculture sector: 132 million EUR.

1.2.6. Transport sector

Table 7

No.	Activity	Deadline ²⁷	Possible funding (EUR) ²⁸ , its sources
3.12	Support sustainable infrastructure development	1) 31.12.2023 2) 31.12.2026	~ 346,6 million. ²⁹ <i>Source: EU Structural Funds National budget Private funding</i>
		31.12.2030.	~ 20 million. <i>Source: EU Structural Funds National budget Private funding Local government budget, including co-financing of municipal budgets</i>
		31.12.2022	~ 35 thousand.
3.13	Promoting and supporting the purchase of low-emission vehicles ³⁰ and below-emission vehicles ³¹ by individuals or merchants	31.12.2022	~ 30 million. <i>Source: Different financial instruments</i>
		31.12.2022	~ 10 million.

²⁷ After the deadline for the execution of the measure, the measure shall be implemented or applicable throughout the coverage period of the Plan unless otherwise specified

²⁸ For the period of implementation of the measure

²⁹ this amount applies only to the electrification of the railway lines "Daugavpils – Krustpils", "Rezekne – Krustpils" and "Krustpils – Riga"

³⁰ Vehicle with such CO₂ emissions:

01.01.2021.-31.12.2025. – 102 g CO₂ per km (New European Driving Cycle – NEDC) or 124 g CO₂ per km (Worldwide harmonized Light vehicles Test Procedures – WLTP)

01.01.2026.-31.12.2030. – up to 75 g CO₂ per km (NEDC) or 90 g CO₂ per km (WLTP)

³¹ Directive 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles Article 4(4) and (5)

No.	Activity	Deadline ²⁷	Possible funding (EUR) ²⁸ , its sources
		30.06.2023	Within the existing budget
3.14	Encourage the movement of low-emission and low-risk vehicles in big cities	31.12.2025	Within the existing budget
		31.12.2028	Within the existing budget
3.15	Increasing the number of low-emission and low-risk vehicles, through public procurement services and deliveries.	31.12.2030	Not known <i>Source:</i> <i>Different financial instruments - EU Structural Funds, financing from auctioning emission allowances — Modernisation Fund, National budget, including EKII, municipal budget</i>
		31.12.2022	~ 50 million. <i>Source:</i> <i>EU Structural Funds</i> <i>National budget, including EKII</i> <i>Local government budget, including co-financing of municipal budgets</i> <i>Private funding</i>
3.16	To impose an obligation on fuel suppliers to sell the RES, combined with an obligation to reduce life cycle GHG emissions per unit of energy supplied	31.07.2021	Within the existing budget
3.17	Improving public transport capacity in large cities	31.12.2025	Within the existing budget
3.18	Develop <i>Park & Ride</i> infrastructure construction	1) 31.12.2023	~ 15 thousand. <i>Source:</i> <i>municipal budget</i>
		2) 31.12.2021	
3.19	Promoting the use of the backbone of the rail as a modern and environmentally friendly public transport system	31.12.2023.	~113,6 million.
		31.12.2023	Within the existing budget
3.20	Development of velocities and velo infrastructure by developing and improving the availability of velonooplaces, building additional and restoring existing waterways	31.12.2022	~ 15 thousand.
		31.12.2022	~ 10 million. <i>Source:</i> <i>EU Structural Funds</i> <i>National budget, including EKII</i> <i>National budget</i>
		30.06.2024	Within the existing budget
3.21	Encourage improvement of pedestrian infrastructure	31.12.2025	~ 10 million.
		31.12.2024	Within the existing budget

No.	Activity	Deadline ²⁷	Possible funding (EUR) ²⁸ , its sources
3.22	Encourage the development of low-speed vehicle ³² infrastructure	31.12.2025	~ 10 million. <i>Source:</i>
3.23	Reduce the need for people and business movements by promoting remote work, study and other services.	31.12.2030	~ 5 million. <i>Source:</i> <i>EU Structural Funds</i> <i>National budget, including EKII</i> <i>National budget</i> <i>Local government budget,</i> <i>including co-financing of</i> <i>municipal budgets</i> <i>Private funding</i>
3.24	Encourage the creation of multimodal points	31.12.2026	Not known
		31.12.2030	Not known <i>Source:</i> <i>EU Structural Funds</i> <i>National budget</i>
3.25	Support research into alternative fuels (advanced biofuels, hydrogen, electricity, etc. non-emission fuels), production and infrastructure technologies and the development of innovative solutions for their integration into the energy system, as well as the development of mobility, transport systems and logistical solutions to improve energy efficiency and environmental sustainability.	31.12.2030	~ 233,5 million. <i>Source:</i> <i>EU Structural Funds</i> <i>National budget, including EKII</i> <i>National budget</i> <i>Private funding</i>
7.2.	Review the rates of excise duty and the conditions for applying it to fuel within the framework of the tax policy guidelines	31.12.2022	Within the existing budget
7.3.	Review the tax conditions applicable to vehicles within the framework of the tax guidelines	31.12.2023	Within the existing budget
	Encourage the production of biogas and biomethane and the use of biomethane	Development of biogas transport infrastructure	

Total planned finance in transport sector: 840,75 million EUR.

1.2.7. Summary

Summarising the potential funding planned in NECP2030, it can be concluded that the largest part of the total of 5.1 billion EUR is planned for the conversion, household and transport sectors.

³² Vehicles with a maximum speed of 45 km/h, such as small-power scooters, small-power motorcycles, other than agricultural and forestry machinery

Table 8

The breakdown of planned finance in NECP2030 to sectors, (billions, EUR)

Sector	Possible funding, billion EUR
Public sector and commercial sector	0,68
Industrial sector	0,23
Residential sector	1,57
Power sector	1,65
Agricultural sector	0,13
Transport sector	0,84
Total:	5,1

2. TAXES

In line with the current situation and the scope of NECP2030, tax policy is one of the instruments for promoting the transition to carbon-intensive development and more sustainable public behaviour.

Taxation makes it possible to influence public decisions and habits, and to encourage wider and more widespread use of various non-emission or low-emission technologies and solutions.

In order to be able to model possible development scenarios as close as possible, tax changes and trends were analysed. However, there is uncertainty in the tax area, as they have been approved and accepted at the time of the analysis.

In the light of publicly available information, the Ministry of Finance (MF) should, in line with Objective 5.1 of the Government's Action Plan, draw up, together with the social and cooperation partners of the Government, "Medium-term national tax policy guidelines for 2021-2025". The guidelines will strengthen binding tax changes^{33, 34, 35}.

Having regard to the scope of NECP (in particular AD11 *Improving the "greening" and attractiveness of the tax system for energy efficiency and RES technologies*), the main tax groups for development scenarios are:

- Excise duties;
- Natural resources taxes;
- Transport taxes and levies.

On the basis of the fact that the tax policy guidelines mentioned above have not been approved at this stage, no other tax groups, such as value added tax and changes thereto, were more widely viewed at this stage.

2.1. Excise duties

Excise duty (ED) is a specific consumption tax applicable to certain groups of consumer goods produced or imported in the country.

The aim of ED is to limit the consumption of goods that are harmful to the environment and people, as well as to give the State revenue by imposing an additional consumption tax (in addition to value added tax) on goods that are not essential goods and which do not affect the poor. However, the main objective of excise duty is fiscal, i.e. the provision of revenues from the State budget.³⁶

2.1.1. Excise duties on petroleum products

The aggregated rates of excise duty on petroleum products are shown in Table 9.

³³ https://www.lps.lv/uploads/docs_module/1%20NPP%20virzieni_25.02.2020.pdf

³⁴ <http://tap.mk.gov.lv/mk/tap/?pid=40484283>

³⁵ <https://likumi.lv/ta/id/313037-par-nozaru-politiku-pamatnostadnem-2021-2027-gada-planosanas-periodam>

³⁶ <https://www.vid.gov.lv/lv/akcizes-nodoklis-1>

Table 9

Rates of excise duty on petroleum products, EUR³⁷

Type of petroleum product	from 01.01.2016.	from 01.01.2017.	from 01.01.2018.	from 01.01.2020.
	EUR	EUR	EUR	EUR
Lead-free petrol (per 1000 l)	436,00	436,00	476,00	509,00
Lead-free petrol to which ethanol is added (bio 5%) (per 1000 l) ¹				
Lead-free petrol to which ethanol is added (E 85) * (per 1000 l) ²	131,00 (absolute alcoholic strength between 70% and 85% by volume (inclusive))	131,00 (absolute alcoholic strength between 70% and 85% by volume (inclusive))	142,80 (absolute alcoholic strength between 70% and 85% by volume (inclusive))	152,70 (absolute alcoholic strength between 70% and 85% by volume (inclusive))
Lead containing petrol (per 1000 l)	455,32	455,32	594,00	594,00
Diesel fuel (per 1000 l)	341,00	341,00	372,00	414,00
Diesel fuel bio (5%-30% (per 1000 l)) ³				
Diesel fuel with a bio-admixture of 30% (per 1000 l) ⁴				
Biodiesel fuel (per 1000 l) ⁵	0,00	0,00	0,00	0,00
Paraffin oil (per 1000 l)	341,00	341,00	372,00	414,00
Fuel oil (heavy fuel) (per 1000 kg)	15,65	15,65	15,65	15,65
Fuel oil (per 1000 l) ⁶	341,00	341,00	372,00	414,00
Petroleum gases and other gaseous hydrocarbons (per 1000 kg) ⁷	206,00	206,00	244,00	285,00
Labelled fuel (per 1000 l)	56,91	56,91	56,91	56,91
Labelled fuel (bio 5%) (per 1000 l)	21,34	21,34	21,34	21,34
Diesel for farmers** (per 1000 l) ⁸	50,00	50,00	55,80 from July 1, 2018	62,10
* from January 1, 2018, the duty of 1000 litres is calculated at 30% of the rate for lead-free petrol				
** from July 1, 2018, the duty of 1000 litres is calculated at 15% of the rate for diesel				
¹ ethyl alcohol derived from agricultural raw materials dehydrated (with an alcohol content of at least 99,5% by volume) and an absolute alcoholic strength of 5,0% by volume of the total quantity of products				
² ethyl alcohol obtained from agricultural raw materials and dehydrated (with an alcohol content of at least 99,5% by volume) and an absolute alcoholic strength of between 70,0 and 85,0% by volume of the total quantity of products				
³ biodiesel or rapeseed oil shall comprise between 5 and 30 (not including) by volume of the total quantity of petroleum products				
⁴ biodiesel or rapeseed oil shall represent at least 30% by volume of the total quantity of petroleum products				
⁵ biodiesel wholly obtained from rapeseed oil and rapeseed oil marketed or used as heat fuel or transport fuel				
⁶ for fuel oil with a colometrical index of less than 2,0 and a kinematic viscosity of 50 o C of less than 25 mm ² /s, for its substitute products and components				

³⁷ <https://www.vid.gov.lv/lv/akcizes-nodokla-likmes-0>

Type of petroleum product	from 01.01.2016.	from 01.01.2017.	from 01.01.2018.	from 01.01.2020.
	EUR	EUR	EUR	EUR
⁷ where supplied for use as a heat fuel, EUR 0				
⁸ diesel fuel (gas oil) and diesel fuel (gas oil) to which biodiesel derived from rapeseed has been added and which is used in accordance with the type, objectives and conditions referred to in Section 18, Paragraph five of the Law on Excise Duty (for the production of agricultural products, for the processing of agricultural land, as well as for the treatment of forest or swamp land where cranberries are cultivated or blueberries blueberries and land under fish ponds for processing, if minimum revenues from agricultural production are ensured) and are labelled in accordance with Section 28 of this Law				

On the basis of the information currently available, the MF maintains a proposal to freeze the rates of excise duties (hereinafter - ED) on petroleum products for a period of 3 years (2021-2023). This fact is taken into account in the development of the scenarios by applying the rates of ED and their changes.

For comparison, Table 10 summarises the existing rates of ED in the Baltic States for 2020.

Table 10

Rates of petroleum products ED the Baltic States

Petroleum product	ED rates in <i>euro per 1000 litres</i>			
	Latvia 2020	Estonia 2020	Lithuania 2020	Poland 2020 ³⁸
Unleaded petrol	509	563	466	392
Diesel fuel	414	493	372	345

The summary of the rate of ED on natural gas, depending on its use, is shown in Table 11.

Table 11

Rates of excise duty on natural gas, EUR³⁹

Name of goods	Until 31.03.2017. per 1000 m ³	From 01.04.2017. par MWh
Natural gas (if used as fuel for heating)	17,07	1,65
Natural gas (if used as fuel for transport)	99,60	9,64
Natural gas (if used as fuel in industrial production processes)	5,65	0,55

2.2. Changes in excise duty

According to the information available, the MF maintains a proposal to divide the rates of excise duty from 2021 into two components: energy and CO₂ components. This approach means that for oil products with a higher CO₂ component, the total ED will be higher. The “polluter pays” principle would therefore be strengthened more strongly in practice.

Modelling scenarios takes into account the position maintained by the FM on fixed ED on petroleum products up to 01.01.2024.

³⁸ https://ec.europa.eu/energy/observatory/reports/Oil_Bulletin_Duties_and_taxes.pdf

³⁹

https://www.fm.gov.lv/lv/sadala/nodoklu_politika/nodoklu_un_nodevu_sistema_latvija/akcizes_nodoklis/nodokla_likmes/

After 01.01.2024. the ED consists of two components and the CO₂ component is expected to increase, thereby increasing the total ED on petroleum products and fuels.

2.2.1. CO₂ component of ED on petroleum products

The intended CO₂ component for petroleum products is determined on the basis of the average CO₂ emission allowances (EUA) price of EUR 25 per tonne set in 2019.

Table 12

Determination of the CO₂ component of petroleum products

Petroleum product	ED rate per 1000 l (kg) (m ³)	CO ₂ rate, euro/ t CO ₂	CO ₂ component, euro	CO ₂ component, %	Energy content component, euro	Energy content component, %	Energy content rate, euro/GJ
Lead petrol (1000 l)	594	25	56,79	9,6%	537,21	90,4%	16,39
Unleaded petrol (1000 l)	509	25	56,79	11,2%	452,21	88,8%	13,80
Diesel fuel (1000 l)	414	25	65,43	15,8%	348,57	84,2%	9,87
Paraffin oil (1000 l)	414	25	62,20	15,0%	351,80	85,0%	10,17
LPG (autogas) (1000 kg)	285	25	72,57	25,5%	212,44	74,5%	4,62
Natural gas (1000 m ³)	101	25	47,70	47,2%	53,27	52,8%	1,57

Adjustments for excise duties on petroleum products are planned only if the price of CO₂ rises to more than 5 EUR/t, taking into account the CO₂ components calculated above.

It is assumed that the price of CO₂ will rise by an average of 3-5 EUR/t CO₂ every 1-3 years. The modeling assumed that the price of CO₂ would rise as follows:

- 2025: 30 EUR/t CO₂;
- 2030: 35 EUR/t CO₂;
- 2040: 70 EUR/t CO₂;
- 2050: 100 EUR/t CO₂.

ED on petroleum products and their changes, depending on the price of CO₂, are summarised in the table below.

Table 13

ED on petroleum products and changes thereto, depending on the price of CO₂

CO ₂ price, eur/t CO ₂	25	30	35	40	45
Petroleum product	ED rate per 1000 l (kg) (m ³)	ED rate per 1000 l (kg) (m ³)	ED rate per 1000 l (kg) (m ³)	ED rate per 1000 l (kg) (m ³)	ED rate per 1000 l (kg) (m ³)
Lead petrol (1000 l)	594	605	617	628	639
Unleaded petrol (1000 l)	509	520	532	543	554

CO ₂ price, eur/t CO ₂	25	30	35	40	45
Petroleum product	ED rate per 1000 l (kg) (m ³)	ED rate per 1000 l (kg) (m ³)	ED rate per 1000 l (kg) (m ³)	ED rate per 1000 l (kg) (m ³)	ED rate per 1000 l (kg) (m ³)
Diesel fuel (1000 l)	414	427	440	453	466
Paraffin oil (1000 l)	414	426	439	451	464
LPG (autogas) (1000 kg)	285	300	314	329	343
Natural gas (1000 m ³)	101	111	120	130	139

The CO₂ components are intended not to apply to sustainable biofuels (biodiesel, bioethanol, biomethane and paraffinised biodiesel) or fuels, but only energy components are to be identified according to the energy content of biofuels.

In determining the energy component of -10 EUR per GJ, the ED rate for biodiesel would be 330 EUR per 1000 litres⁴⁰.

The ED on the fuel used in agriculture shall be set at least at such a level that it covers the calculated CO₂ components.

Table 14

Determination of the CO₂ component of the rate of ED on fuel used in agriculture

	ED rate, euro per 1000 litres		ED rate in 2021, euro per 1000 litres	CO ₂ component, euro	Impact on price, euro per litre	
	2019	2020			ED change,	Change, including VAT
Latvia	55,8	62,1	65,4	65,4	0,0033	0,004
Lithuania	56	60				
Estonia	133	133				

2.2.2. CO₂ component of ED on fuels

For fuels, the CO₂ components of the fuel rate are to be determined as follows:

- for diesel (labelled fuel): 10 EUR per tonne, for the remainder to be applied by energy components (1 EUR per GJ);
- for fuel (heavy fuel and coal), 25 EUR per tonne;
- for alternative fuels (natural gas and petroleum gas (LPG) -10 EUR per tonne.

⁴⁰ The rate of ED on biodiesel and paraffinised biodiesel in accordance with the draft law "Amendments to the Law on Excise Tax" submitted to the Saeima (No 383/Lp13) Draft law adopted at 1 reading on 26.9.2019.

Determination of the CO₂ component of the rate of ED on fuels

	ED rate per 1000 l (kg) (m ³)	CO ₂ rate, euro/ t CO ₂	CO ₂ compo- nent, euro	CO ₂ compo- nent, %	Energy content compo- nent, euro	Energy content compo- nent, %	Energy content rate, euro/GJ
Labelled diesel fuel (1000 l)	56,91/ 60*	10	26,17	43,6%	33,83	56,4%	0,96
LPG fuel (1000 kg)	0	10	29,03	-	-72,57	-	
Natural gas (1000 m ³)	17,28	10	19,08	110%	-1,80	-10%	
Heavy fuel oil (1000 kg)	15,65	25	77,40	495%	-61,75	-395%	
Coal** (1000 kg)	21,3	25	56,76	266%	-35,46	-166%	

*ED rate for fuel in accordance with the draft law "Amendments to the Law on Excise Duty" submitted to the Saeima (No 383/Lp13) The draft law adopted at 1 reading on 26.9.2019.

**Rate according to Annex 9 to the Natural Resources Tax Act

The imposition of ED on oil gas used as fuel for the introduction of the CO₂ component (10 EUR/t) will ensure that the ED burden is aligned with natural gas for which ED has already been applied since July 2011. Thus, in setting an equivalent ED burden, taking into account CO₂ emissions from each fuel, 10 EUR per tonne of CO₂, the ED on petroleum gases should be set at 29 EUR per 1000 kg, while natural gas should be increased from 1.65 EUR per 1 MWh to 1.82 EUR per 1 MWh or by 10.4%.

The imposition of ED on petroleum gas could lead to an increase in the price per balloon (50 litres 21 kg) by 0,74 EUR, including VAT, or by less than 3%, taking into account the retail price of the balloon in 2020. On the other hand, the effect of the increase in ED on a household whose natural gas is consumed for cooking and also for heating water would be 1 m³ from 1.7 cents to 1.9 cents, or 0.2 cents, including VAT, or 0.4% of the natural gas tariff in force since 1 January 2020⁴¹.

Households using petroleum gas for heating, such as the annual consumption of oil gas for home heating of 100 m², would increase costs by 19.4 EUR per annum, while, including VAT, costs would increase by 23.5 EUR per annum.

Households whose natural gas is consumed for heating an apartment or house, an increase in ED on the natural gas tariff would have an effect of 0.7%. At the same time, it should be noted that Estonia's ED on natural gas is set at 79.14 EUR per 1000 m³ or 7.55 EUR per 1 MWh, which is approximately 4.5 times higher than the ED on natural gas applied in Latvia at present.

2.2.3. Compressed natural gas

In order to promote the establishment of refuelling points for compressed natural gas in the territory of Latvia and its use in vehicles using natural gas as fuel, the Ministry of Transport (hereinafter – MT) has proposed that a full exemption from the ED on natural gas (CNG) used in transport be determined by 2030.

⁴¹ <https://lg.lv/majai/tarifi-un-kalkulators>

A scenario is proposed to phase out the ED on natural gas used in transport for a period of five years, providing that between 2021 and 2025 the rate of ED on natural gas as a fuel is 4.82 EUR per 1 MWh or 50.5 EUR per 1000 m³.

Table 16

ED on natural gas (CNG), used in transport, determination of the rate of 50% ED

		Existing rate 2020	Scenario		Lithuania**	Estonia
			2021.-2025.g	No 2026.gada		
Natural gas as fuel	per 1000 m ³	101	50,5	105	0	47,32
	per 1 MWh	9,64	4,82	10	0	4,52

*The rate of ED on natural gas has been recalculated from MWh to 1000 m³, taking into account the natural gas parameters at the Conexus Baltic Grid measuring station in December 2018 (Riga-1).

**ED on natural gas used in transport was abolished from 2018

2.3. Natural resources tax

The following proposals from the Ministry of Environmental Protection and Regional Development are currently being analysed for changes in natural resources tax rates related to energy resources, energy extraction, vehicles, emissions and polluting activities.

2.3.1. Stationary technological installations using peat as fuel

It is planned to remove the CO₂ emissions exemption if peat is used as fuel in stationary technological installations.

Currently, a favourable regime for the use of peat in stationary technological plants as a fuel is provided for the exemption from the payment of NRT for CO₂ emissions from peat. Peat is not a renewable energy resource. This contradicts the overall political settings for reducing greenhouse gas (GHG) emissions.

Table 17

Removal of the exemption for CO₂ emissions where peat is used in stationary technological installations

	Existing rate	Increased rate		
		2021	2022	2023
Emissions of carbon dioxide (CO₂) for peat use in stationary technological installations, euro per tonne	0	12	15	15

2.3.2. Rate of Natural Resources Tax on permanently registered vehicles for the first time

It is planned to raise the rate of NRT by permanently registered vehicles for the first time, as MEPRD have assessed the application of the NRT to permanently registered vehicles in Latvia and the current situation in the management of end-of-life vehicles.

In order to ensure that vehicles covered by the End-of Life Vehicles Management Law are properly managed and motivated to implement the principle of producer responsibility, it is necessary to raise the NRT rate per vehicle.

Table 18

Increasing the rate of the NRT on vehicles permanently registered for the first time

	Existing rate	Increased rate		
		2021	2022	2023
Vehicles registered for the first time, euro	55	65		

2.3.3. Fixed duty on emissions of Category C polluting activities

It is planned to raise the fixed tax on emissions of Category C polluting activities from 71,14 EUR to 250 EUR.

The study “Assessing the effectiveness of the application of the Natural Resources Tax rates” (Ernst & Young Baltic, 2019) assessed the effectiveness of the fixed tax on Category C polluting activities.

The fixed payment for Category C polluting activities of 50 LVL was set out in the NRT Act in 2006 and converted to EUR in 2014, respectively. The tax levy currently fixed is 71,14 EUR.

The rates of NRT for water and air pollution in 2006 have been increased compared to the rates in 2020. On the other hand, the fixed duty has not changed throughout this period, resulting in the fixed duty being not proportional to other rates of environmental contamination and therefore cannot be considered effective. The study concludes that it is necessary to gradually raise this duty by 250-300%, leaving the possibility of calculating and paying the tax according to the nature and extent of the actual contamination of the taxpayer.

Table 19

Increasing the fixed payment of the NRT for Category C polluting activities

	Existing rate	Increased rate		
		2021	2022	2023
Fixed duty for Category C polluting activity, euro	71,14	178	200	250

2.3.4. Natural Resources Tax Rates on Air Emissions

It is planned to raise the NRT rates on air emissions (PM₁₀, NH₃ un NO_x). The study “Assessing the effectiveness of the application of the Natural Resources Tax Rates” (Ernst & Young Baltic, 2019) assessed the effectiveness of the NRT rates on air pollution and developed proposals for the necessary rate changes, in line with the emissions forecasts for pollutants and the emission reduction targets for 2030.

Table 20

Raising the NRT on Air Emissions

	Existing rate	Increased rate		
		2021	2022	2023
PM₁₀ fractions, euro per tonne	75,00	105	120	135
Ammonia (NH₃), hydrogen sulphide (H₂S) and other inorganic compounds, euro per tonne	18,50	50	70	90
Sulphur dioxide (SO₂), nitrogen oxides (NO_x – sum of nitrogen oxides, recalculated to NO₂), euro per tonne	85,37	125	140	160

2.3.5. Rate of NRT on the use of the valid properties of subterranean deters by suspending natural gas in geological structures

It is planned to raise the rate of NRT on the use of the useful properties of subterranean depths by injecting natural gas into geological structures.

Geological structures in which natural gas can be stored are the wealth of the subterranean depths of Latvia. The rate started to apply from 1 July 2005 and the tax rate has not been revised since then, which does not correspond to economic processes in the country.

Table 21

Increasing the rate of the NRT on the use of the useful properties of subterranean depths by injecting natural gas into geological structures

	Existing rate	Increased rate		
		2021	2022	2023
Use of the useful properties of subterranean depths by injecting natural gas into geological structures, euro per 100 m ³	0,0143	0,3		

2.4. Taxes and duties on motor vehicles

There is now a more active move towards the introduction of the “polluter pays” principle in the transport sector. This means that taxes and levies focused on reducing or limiting CO₂-intensive movements.

2.4.1. Vehicle Operating Tax

The transport vehicle operation tax (hereinafter - VOT) or annual tax on vehicles is applied by the majority of EU Member States and OECD Member States, with the exception of Estonia, Lithuania, Poland and Slovenia, while Poland and Slovenia are subject to registration tax on light vehicles.

On the other hand, Lithuania and Estonia have not introduced an annual tax on light vehicles at all, so it is not reasonable to say that in these countries the annual tax on light vehicles is included in the excise duty on fuel.

The VOT rates for light vehicles are calculated as follows:

- ✓ for automobiles first registered before 31.12.2004 by full weight;
- ✓ for automobiles first registered from 01.01.2005 to 31.12.2008 – by full mass, engine volume and engine maximum power;
- ✓ for automobiles first registered from 01.01.2009 – by CO₂ emissions.

2.4.2. Current proposals for changes in VOT for vehicles:

There are currently two proposals for changes to the VOT for vehicles.

The first proposal foresees extending the VOT application principle (by CO₂ emissions) to trucks registered for the first time from 1 January 2009, with a full mass of up to 3.5 t (category N₁), and taking into account the EURO emissions standard (currently VOT is only determined by the full mass).

Table 22

Application of the principle of VOT rates (CO₂ emissions) to trucks of a full mass of up to 3,5 t (category N₁)

Truck (e.g.)	Full mass, kg	CO ₂ emissions, g/km	Engine	Engine emission standard	VOT rate in 2020, euro	VOT rate in 2021, euro
Toyota Hilux SR Double Cab with a mechanical gearbox	3210	247	Diesel engine, 2396 cm ³ , 110 kW	Euro 6	219	264

The second proposal foresees a review of VOT rates for trucks and buses, taking into account the rate of inflation growth since 2011 (with VOT replacing the annual toll of vehicles without revising rates).

Further discussion on the following MT proposals:

- a) apply new VOT calculation rates to vehicles for which CO₂ emissions have been determined according to the new CO₂ emission method (WLTP) and to be equivalent to VOT rates calculated using the CO₂ emissions identified by the previous method (NEDC). For vehicles for which CO₂ emissions have been determined using both the NEDC method and the WLTP method, use the CO₂ creators identified according to the WLTP method for the VOT calculation. The estimated budgetary impact assessed by the Ministry of Transport is neutral;
- b) introduce a VOT rate of 90% (a factor of 0,9 would be applied) if the vehicle is re-engineered and natural gas or petroleum gas is identified as the fuel type. This would reduce CO₂ emissions by 20-25% on average. This would apply to VOT incentives for vehicles equipped with gas-feeding plants when rebuilding and using petroleum gas or natural gas as a fuel type.
- c) introduce additional duty rates in the calculation, depending on the emission level of the vehicle engine (EURO I, II, III, IV, V, VI) for buses and lorries.
- d) reducing the VOT rates for all vehicles to 50% while introducing the application of the RUT (vignette) to light vehicles. The aim is that the polluter pays depending on the time spent on the road, not on the status and location of the active access to road traffic. That means vehicles that don't use the country's major roads will have less spending on road taxes. On the other hand, the application of the time RUT (vignette) to vehicles registered abroad, which cross the territory of Latvia, will allow for an increase in the financing of the State Road Foundation, which can be directed towards the renewal and maintenance of major roads.

2.4.3. Business light vehicle tax

Business light vehicles tax (hereinafter – BLVT) **aims** at taxing cars owned or held by economic operators and used not only for economic activity but also for private purposes. Operators who use motor vehicles only in economic activity shall declare them in the national register of vehicles and their drivers maintained by the Road Traffic Safety Directorate and shall be exempt from the payment of the tax on passenger vehicles of undertakings.

BLVT rates are defined as a constant number, not expressed in percentage terms, as for most taxes. Thus, these types of tax rates remain unchanged despite changes in consumer prices. In view of this, it is necessary to review BLVT rates at a time-limited interval and to index them according to the inflation rate. Under these conditions, BLVT rates are increased taking into account changes in the consumer price index starting in 2017. BLVT rates were also indexed in advance, following changes in the consumption price index calculated by the Central Statistical Bureau in 2014 against 2010 and applied accordingly on 1 January 2016.

Table 23

Indexation of BLVT rates, taking into account the rate of inflation growth from 2017

Vehicle	BLVT rate in 2020, euro per month	BLVT rate in 2021, euro per month
Up to 2000 cm ³	29	31
From 2001 cm ³ to 2500 cm ³	46	49
From 2501 cm ³ to 3000 cm ³	62	66

In addition to the changes above, a more detailed distribution of cars by their engine volume has also been made, resulting in the separate distribution of vehicles with a large engine volume, namely automobiles with an engine volume exceeding 3000 cm³, of a new BLVT rate of 82 EUR.

Given the importance of strengthening action to mitigate climate change at the moment, it is one of the measures to try to limit operators' use of cars with large-scale engines for private purposes.

Table 24

Determination of the additional rate for vehicles with an engine capacity exceeding 3000 cm³

Vehicle	BLVT rate in 2020, euro per month	BLVT rate in 2021, euro per month
Above 3000 cm ³	62	82

Estonia also introduced a tax on the use of a company car for the personal needs of employees as from 1 January 2018. The tax is calculated on the basis of two criteria, namely the age of the car and the maximum engine power in kilowatts. It is also possible for Estonian businessmen to declare that the vehicle is used solely for economic purposes and not to pay the tax on the car.

The Ministry of Transport proposes to exempt from the payment of BLVT the means of transport used for the commercial carriage of passengers by taxis, in order to avoid the possibility that, after BLVT is paid, taxis being carried out without switching on the counter or at all, by providing the control with information that passenger transport is not carried out at this point, without accounting for revenue. At the same time, including an exemption for taxis in the Vehicle Operating Tax and the Business light vehicles tax law, the proposal would require vehicles to be owned by the merchant (except in the case of financial leasing). The registration of vehicles in the property of a merchant instructs the merchant to perform an inventory of the life and costs of the vehicle, as well as the rights of the SRS to be barred for activities with property owned by the merchant in cases of non-payment of taxes.

2.4.4. Light vehicle registration tax

Taking into account existing trends in several European cities to reduce air pollution by preventing vehicles with lower emission standards from entering their centres, it is possible to increase the flow of old and more environmentally harmful light vehicles, particularly those equipped with diesel engines, to Latvia. In line with MEPRD proposal, it is necessary to re-introduce vehicle registration tax (hereinafter - VRT) to influence consumer choice in favour of climate and the purchase of a more environmentally friendly light vehicle.

Lithuania is scheduled to introduce a registration tax on light and commercial vehicles (categories M₁ and N₁) on CO₂ emissions by 1 July 2020, while providing for an exemption from registration tax if CO₂ emissions are up to 130 g/km. In addition, the registration tax on the same amount of CO₂ emissions for vehicles equipped with diesel engines will be twice higher than for

a petrol-powered vehicle, while the registration tax for a vehicle equipped with gas as a fuel-feeding plant is reduced by 10%.

Table 25

Registration rates for light vehicles and light cargo vehicles (categories M₁ and N₁) applicable in Lithuania, to take effect from 1 July 2020, in EUR

CO ₂ emissions		Tax rate depending on fuel type		
from	to	Diesel	Petrol	Gas
0	115	0	0	0
116	130	0	0	0
131	140	30	15	13,5
141	150	60	30	27
151	160	90	45	40,5
161	170	120	60	54
171	180	150	75	67,5
181	190	180	90	81
191	200	210	105	94,5
201	210	240	120	108
211	220	270	135	121,5
221	230	300	150	135
231	240	330	165	148,5
241	250	360	180	162
251	260	390	195	175,5
261	270	420	210	189
271	280	450	225	202,5
281	290	480	240	216
291	300	510	255	229,5
301 and more		540	270	243

In order to prevent the registration of old and end-of-life light vehicles in Latvia from Western European countries, as well as from Lithuania, it is necessary to assess the extent to which registration tax rates are set, as well as to adjust them according to the standard of engine emissions.

The following proposals for the introduction of VRT for vehicles are currently being evaluated:

- 1) to renew the registration tax for light vehicles in order to prevent the influx of old and environmentally harmful light vehicles from Western Europe and registration in Latvia, taking into account the tenders expressed by MEPRD and the MT. Using light vehicle's age, fuel type, CO₂ emissions, EURO standard and car value excluding VAT as criteria for setting the registration tax rate;
- 2) to renew registration tax also on motorcycles, taking into account the capacity of the engine (cm³).

Table 26

Example of VOT import rates for vehicles registered from 2009

CO ₂ indicator	Import rate, <i>euro</i>
up to 50	200
51-95	212
96-115	248
116-130	284

131-155	320
156-175	344
176-200	368
201-250	464
251-300	608
301-350	752
above 350	956

In 2019, the number of light (M₁) and light cargo (N₁) vehicles registered in Latvia was 71 thousand. When applying the Lithuanian model, it should be noted that the registration tax would not be paid by 26% of the first registered light (M₁) and light cargo (N₁) vehicles with a diesel engine type, 41% with a petrol engine type and 12% of the first registered vehicles equipped with additional gas (LPG, CNG/LNG) equipment, as they correspond to the CO₂ emission category exempted.

The MT proposal to apply a tax from 2021 (VOT on entry) to light vehicles that are re-registered (on entry) in Latvia and are over 5 years old is intended to partially limit the entry into Latvia of end-of-life fossil fuel-powered vehicles.

2.4.5. Toll on road use

The following MT proposals are currently being evaluated:

- 1) to introduce RUT for cargo vehicles of a total mass of up to 3000 kg.
- 2) to introduce the application of the RUT to buses and wheeled tractors of category T5 designed constructively for driving at speeds exceeding 40 km/h.
- 3) introduce the application of the RUT (vignette) to light vehicles, while reducing VOT for all vehicles to 50% registered in Latvia. Objective: More active introduction of polluter pays principle.

3. ELABORATION OF SCENARIOS

Taking into account the structure of the NECP2030 framework and the direction of the measures and actions planned under it, as well as the possible funding currently earmarked, as well as the planned tax changes and associated rate trends, scenarios were created. The biggest uncertainty is directly related to tax rates and their intended changes, which are one of the most powerful policy instruments to encourage the redeployment of the entire energy system towards climate neutrality.

Four main scenarios – Baseline scenario, Baseline scenario with NECP2030 cumulative final consumption target, NECP scenario with National Energy and Climate Plan action policies and NECP scenario with cumulative final consumption savings target have been implemented in the model (see Fig. 3.1.). Also reference scenario excluding existing taxes has been implemented in the model.

3.1. Matrix of scenarios

A scenario matrix was created to help describe scenarios and their relationship.

	Without NECP203 final energy goals	With NECP2030 final energy goals
Without NECP2030 activities	1st scenario <i>Baseline scenario</i>	3rd scenario
With NECP2030 activities and planned finance	2nd scenario	4th scenario
+		
Towards Climate neutrality by 2050		

Fig.3.1. Matrix of elaborated scenarios

3.2.1. Scenario 0 - Reference scenario

The reference scenario or “Zero scenario” is based on the situation of 2017 (energy balance, energy mix, energy demand, population, gross domestic product, etc.), i.e. “frozen” 2017. In practice, this scenario is designed to compare other development scenarios and to provide an opportunity to identify their development rates and trajectory as well as their significant changes. The Reference scenario does not include existing taxes, such as CO₂ and Natural resource tax (NRT), nor does it include a requirement to increase the amount of biofuels added to diesel and petrol starting from the year 2020. In the reference scenario biofuel share is applied at the level it was in 2017 and remains unchanged throughout the modelling period.

3.2.2. Scenario 1 - Baseline scenario

The baseline scenario is a scenario that will describe the development trajectory if existing policy support instruments, taxes and other conditions remain in place. It is important to note that today the baseline scenario will have an impact from COVID-19, the true size of which will only be seen in the energy balance of 2020, which will be available in 2021.

The Baseline scenario includes existing taxes, such as the NRT, CO₂ tax, excise duty on fossil fuels and a diversified excise duty for the industry and the transport sector natural gas, and also includes vehicle operating tax. As well as from 2020, the minimum share of added biofuels

is 10% for petrol and 7% for diesel. The baseline scenario also includes an amount of insulation of residential buildings, which corresponds to 156 million euros of existing grants for the purpose of insulating buildings provided by EU funds. The amount of heating is derived from the System-dynamic model results and included as input data in the TIMES model.

3.2.3. Scenario 2 - NECP2030 Scenario

This scenario provides for the full implementation of virtually all of the measures provided for in Annex 4 of NECP2030, with the funding and implementing conditions provided for therein.

The NECP scenario includes the measures from Annex 4 of the National Energy and Climate Plan that are defined by a specific amount of funding. Similarly, non-financial measures, such as raising the comfort factor for public transport (the effect of improving public transport capabilities), restrictions on the installation of solid or liquid fossil fuels in heating, have been implemented. The measures incorporated directly or indirectly are the following:

- Promotion of the production of biogas and biomethane and the use of biomethane
- Promoting energy efficiency improvements of public buildings owned by the state and local governments
- Promotion of RES use and energy efficiency in local heating and individual heating
- Promoting the use of solar energy in electricity generation
- Promoting the use of RES and improving energy efficiency in industry and economic operators
- Promotion of RES use and energy efficiency improvements in district heating
- Limitations for the installation of new combustion plants that use only solid or liquid fossil fuels
- Construction of offshore wind park
- Promotion of energy efficiency in residential buildings
- Supporting sustainable infrastructure
- Promotion of the purchase of low-emission vehicles and low-emission vehicles by individuals or economic operators
- Promoting the use of the backbone of the rail as a modern and environmentally friendly public transport system
- Promotion of cycling, cycling infrastructure and sidewalk development

3.2.4. Scenario 3 - Baseline scenario with cumulative energy end-use savings target

A target optimization scenario that will show a developmental trajectory without measures of Annex 4 of NECP2030.

This scenario includes all baseline scenario conditions and an end-use energy saving target calculated on the basis of the final energy consumption value from the 2018 energy balance minus 1,34 PJ in the coming years till 2030. No cumulative savings target is set after the year 2030.

3.2.5. Scenario 4 - NECP scenario with cumulative energy end-use savings target

A target optimization scenario that will show the development trajectory if the measures provided for in Annex 4 of NECP2030 are implemented with the funding and implementation conditions (limits) provided for therein.

This scenario includes all the conditions of the NECP scenario and an end-use energy saving target calculated on the basis of the final energy consumption value from the 2018 energy balance minus 1,34 PJ in the coming years till 2030. No cumulative savings target are set after the year 2030.

3.2.6. Scenario 5 - Climate neutrality 2050 target optimization scenario

In view of the European Green Deal as well as the objectives of climate neutrality, it is necessary to look beyond 2030. The proposed optimization scenario will show the development trajectory if NECP2030 measures are introduced and if they are not implemented.

3.3. Adjustment of development scenarios

All scenarios could be supplemented and adjusted, taking into account the wide range of factors influencing the model inputs and results. There are uncertainty about tax rates in the future and currently unknown consequences of COVID-19, as well as the practicalities of the European Green Deal.

The nature and scope of possible adjustments will depend, firstly, on the information available and, secondly, on the speed how development policy documents will be designed and approved, and at last, on other factors, for example, macroeconomic conditions.