Annex 1 – Mandatory dataset

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A1. Data structure of useful energy content and final heating and cooling energy consumption

Indicator	Sector	Unit of measurement	2015F	2016F	2017F	2018F	2019F	2020F	2021P	2022P	2023P	2024P	2025P	2030P	2040P	2050P
R1. Need for heat, final consumption	R1.1. Household sector	GWh/year	13 090	13 791	13 971	14 408	13 793	13 474	15 368	13 624	13 444	13 248	13 052	12 077	10 581	9 175
	R1.2. Service sector	GWh/year	3 755	3 897	4 247	4 403	3 959	3 546	4 234	4 113	4 087	4 057	4 026	3 875	3 530	3 135
	R1.3. Industry sector	GWh/year	8 048	8 012	8 685	9 083	9 072	7 855	8 904	8 827	8 818	8 835	8 854	8 834	8 562	7 985
R2. Need for cold, final consumption	R2.1. Household sector	GWh/year	9	9	9	9	9	9	9	21	27	33	39	73	151	245
	R2.2. Service sector	GWh/year	75	76	77	78	80	81	82	120	141	162	184	300	568	885
	R2.3. Industry sector	GWh/year	133	135	143	149	151	150	148	151	151	152	152	151	151	149
TOTAL		**GWh/year**	**25 109**	**25 919**	**27 133**	**28 130**	**27 064**	**25 116**	**28 746**	**26 856**	**26 668**	**26 486**	**26 308**	**25 310**	**23 543**	**21 573**
R3. Need for heat, useful energy content	R3.1. Household sector	GWh/year	12 367	13 066	12 749	13 177	12 615	12 314	13 798	13 053	12 981	12 892	12 803	12 362	11 463	10 644
	R3.2. Service sector	GWh/year	3 787	3 923	4 276	4 436	4 031	3 619	4 340	4 233	4 215	4 192	4 170	4 060	3 763	3 435
	R3.3. Industry sector	GWh/year	7 398	7 368	8 035	8 363	8 332	7 359	8 123	8 320	8 316	8 339	8 366	8 433	8 387	7 967
R4. Need for cold, useful energy content	R4.1. Household sector	GWh/year	23	23	24	24	25	25	25	56	72	89	106	197	409	660
	R4.2. Service sector	GWh/year	201	205	208	212	215	217	221	325	381	438	497	809	1 533	2 389
	R4.3. Industry sector	GWh/year	360	365	386	401	408	406	399	408	408	409	411	409	408	401
TOTAL		**GWh/year**	**24 137**	**24 951**	**25 678**	**26 613**	**25 627**	**23 940**	**26 906**	**26 396**	**26 374**	**26 360**	**26 352**	**26 270**	**25 962**	**25 496**

A2. Data on existing heating and cooling supply infrastructure, UEC 2020

Sector	Type of source of production	Source of production	Unit of measureme	Quantity
Indigenous heat and cold production and supply				
TOTAL	Fossil fuel sources	Individual boilers	GWh/year	5 891
		Waste heat	GWh/year	-
		Other technologies	GWh/year	294
		Cogeneration units	GWh/year	1 581
		Total	**GWh/year**	**7 766**
	Renewable energy resources	Individual boilers	GWh/year	6 171
		Waste heat	GWh/year	-
		Cogeneration units	GWh/year	-
		Heat pumps	GWh/year	1 340
		Other technologies	GWh/year	144
		Total	**GWh/year**	**7 656**
	Total		**GWh/year**	**15 421**
Household sector	Fossil fuel sources	Individual boilers	GWh/year	2 328
		Waste heat	GWh/year	-
		Other technologies	GWh/year	128
		Cogeneration units	GWh/year	-
		Total	**GWh/year**	**2 456**
	Renewable energy resources	Individual boilers	GWh/year	4 464
		Waste heat	GWh/year	-
		Cogeneration units	GWh/year	-
		Heat pumps	GWh/year	525
		Other technologies	GWh/year	6
		Total	**GWh/year**	**4 994**
	Total		**GWh/year**	**7 450**
Service sector	Fossil fuel sources	Individual boilers	GWh/year	1 006
		Waste heat	GWh/year	-
		Other technologies	GWh/year	91
		Cogeneration units	GWh/year	-
		Total	**GWh/year**	**1 098**
	Renewable energy resources	Individual boilers	GWh/year	376
		Waste heat	GWh/year	-
		Cogeneration units	GWh/year	-
		Heat pumps	GWh/year	477
		Other technologies	GWh/year	48
		Total	GWh/year	902
	Total		**GWh/year**	**2 000**
Industry sector	Fossil fuel sources	Individual boilers	GWh/year	2 557
		Waste heat	GWh/year	-
		Other technologies	GWh/year	75
		Cogeneration units	GWh/year	1 581
		Total	**GWh/year**	**4 212**
	Renewable energy resources	Individual boilers	GWh/year	1 331
		Waste heat	GWh/year	-
		Cogeneration units	GWh/year	-
		Heat pumps	GWh/year	338
		Other technologies	GWh/year	90
		Total	GWh/year	1 759
	Total		**GWh/year**	**5 971**
Non-indigenous heat and cold production and supply				
	Fossil fuel sources	Individual boilers	GWh/year	-
		Waste heat	GWh/year	-
		Other technologies	GWh/year	950
		Cogeneration units	GWh/year	874
		Total	**GWh/year**	**1 824**
		Individual boilers	GWh/year	-

TOTAL	Renewable energy resources	Waste heat	GWh/year	113
		Cogeneration units	GWh/year	1 099
		Heat pumps	GWh/year	-
		Other technologies	GWh/year	5 484
		Total	**GWh/year**	**6 695**
	Total		**GWh/year**	**8 519**
Household sector	Fossil fuel sources	Individual boilers	GWh/year	-
		Waste heat	GWh/year	-
		Other technologies	GWh/year	560
		Cogeneration units	GWh/year	501
		Total	**GWh/year**	**1 062**
	Renewable energy resources	Individual boilers	GWh/year	-
		Waste heat	GWh/year	65
		Cogeneration units	GWh/year	631
		Heat pumps	GWh/year	-
		Other technologies	GWh/year	3 132
		Total	**GWh/year**	**3 828**
	Total		**GWh/year**	**4 889**
Service sector	Fossil fuel sources	Individual boilers	GWh/year	-
		Waste heat	GWh/year	-
		Other technologies	GWh/year	210
		Cogeneration units	GWh/year	188
		Total	**GWh/year**	**399**
	Renewable energy resources	Individual boilers	GWh/year	-
		Waste heat	GWh/year	24
		Cogeneration units	GWh/year	237
		Heat pumps	GWh/year	-
		Other technologies	GWh/year	1 176
		Total	**GWh/year**	**1 438**
	Total		**GWh/year**	**1 836**
Industry sector	Fossil fuel sources	Individual boilers	GWh/year	-
		Waste heat	GWh/year	-
		Other technologies	GWh/year	180
		Cogeneration units	GWh/year	184
		Total	**GWh/year**	**363**
	Renewable energy resources	Individual boilers	GWh/year	-
		Waste heat	GWh/year	24
		Cogeneration units	GWh/year	231
		Heat pumps	GWh/year	-
		Other technologies	GWh/year	1 175
		Total	**GWh/year**	**1 430**
	Total		**GWh/year**	**1 793**

A3. Data on existing waste heat and cooling supply infrastructure, UEC 2020

Heat generation installations	Size	Unit of measuremen	Quantity
Thermal power generation installations that can supply or can be retrofitted to supply waste heat with a total thermal input exceeding 50 MW	50 MW	GWh/year	-
Heat and power cogeneration installations of a total thermal power exceeding 20 MW	20 MW	GWh/year	-
Waste incineration plants	-	GWh/year	-
Renewable energy installations with a total thermal input exceeding 20 MW other than the installations specified in Parts 1 and 2 of the table generating heating or cooling using the energy from renewable sources	20 MW	GWh/year	-
Renewable energy installations with a total thermal power of less than 20 MW and more than 1 MW in which heat or cooling is produced using renewable energy.	1 to 20 MW	GWh/year	-
Industrial installations with a total thermal input exceeding 20 MW which can provide waste heat	20 MW	GWh/year	70,2

A7. National efficient RES-based heating and cooling potential established in the cost-benefit analysis

Year 2050

No	Heat source	TOTAL	DH sector	Household sector	Service sector	Industry sector
		GWh/year	GWh/year	GWh/year	GWh/year	GWh/year
1	Waste heat generated in the industry sector	2 232	2 232	-	-	-
2	Waste cold generated in the industry sector	-	-	-	-	-
3	Waste incineration	2 462	1 554	-	-	908
4	High-efficiency cogeneration	2 148	2 148	-	-	-
5	Renewable energy sources:	11 992	4 825	2 381	411	4 375
5.1	Geothermal energy	-	-	-	-	-
5.2	Biofuel	9 105	3 804	2 381	369	2 550
5.3	Solar energy	236	236	-	-	-
5.4	Other renewable energy sources	2 651	784	-	42	1 825
6	Heat pumps	5 235	-	3 884	990	360
7	Reducing heat losses in DH	-				

A8. Analysis of current policy measures

No	Study No.	NECAP No.	Development Programme progress measure No.	Name of policy measure	Description of the main objective of the policy measure	National energy efficiency target concerned	Concise and accurate description of the scope and method of application	Relevant dimension of the European Union*	Implementation period	Status of implementation
1	PM1.	RES23/ERK13	-	Renovate and/or modernise the heat transmission network	A measure curated by the Ministry of Energy of the Republic of Lithuania aimed at renovating and modernising the depreciated heat transmission networks. Modernised district heating networks – 1,000 km New district heating networks – 12 km	The renovation of district heating networks aims at reducing heat network losses to 120 GWh from 2023.	-	Energy efficiency	2018-2030	Ongoing
2	PM2.	RES29.	-	Modernisation of the heat metering system	The EU Internal Market Directive (2009/72/EC) and its amending act (2016/0380(COD)) stipulate that in the case of a positive cost-benefit analysis all heat meters must be replaced by ones with a remote reading function by 2027. Replacing heat meters makes heat metering more accurate and encourages final consumers to use heat more efficiently.	T1. Reduction of GES intensity 2.4 times by 2050	-	Innovations and competitiveness	2021-2027	Ongoing
3	PM3.	RES17.	-	Modernise and/or replace worn out biofuel boilers by other technologies using RES	Improvement of incentivising regulation enabling heat supply companies to accumulate assets necessary for an upgrade for additional RES production capacity with a thermal input of 600 MW. This would ensure long-term maintenance of RES share in the district heating sector and would create preconditions for enhancing fuel use efficiency.	T2. Reduction of PES intensity 2.4 times by 2050	Improvement of incentivising regulation enabling heat supply companies to accumulate assets necessary for an upgrade.	Energy efficiency	2018-2030	Ongoing
4	PM4.	RES18.	-	Promote the use of biofuels for the production of heat energy in district heating systems	Improvement of incentivising regulation enabling heat supply companies to accumulate assets necessary for an upgrade with a thermal input of 70 MW. A regulatory adjustment would allow achieving a higher share of RES in the district heating network without additional public finance investments.	T4. RES share in the DH sector in 2050 – 100%	Improvement of incentivising regulation enabling heat supply companies to accumulate assets necessary for an upgrade.	Decarbonisation	2018-2023	Ongoing
5	PM5.	RES19./ RES27.	-	Promote the use of RES for DH heat production by assessing the options for using solar technologies, heat pumps and heat storage facilities in DH systems	Heat pumps have already been used in other countries and have proved their worth in terms of energy efficiency. Since the period is 2021 to 2030, no specific technology is chosen as the basis. Support will be given to the deployment of the most cost-effective solution with the aim of deploying up to 200 MW of RES capacity. The measure aims to promote the use of solar technologies, heat pumps and heat storage in DH systems and the deployment of 200 MW rated capacity installations by 2030. The use of solar collectors and heat pumps as a substitute for biofuels does not have a significant impact on the reduction of GHG or RES share in the district heating network but contributes significantly to primary energy efficiency.	T4. RES share in the DH sector in 2050 – 100%	Support for investment in RES technologies in the DH sector	Decarbonisation	2021-2030	Ongoing
6	PM6.	RES26.	-	New biofuel combustion plants in the DH system	In Lithuania, biofuels are already used in most municipalities. In 2017, the RES share in the district heating sector was already 68.7% while in the heating and cooling sector as a whole it was over 46%. Coal and gas oils are still used in some municipalities. The measure is aimed at converting their heating facilities to RES. Additional production capacity of new biofuel combustion facilities in the district heating sector is 70 MW. The deployment of biofuel installations replacing fossil fuels significantly reduces GHG emissions and increases RES share but does not have a significant impact on enhancing primary energy efficiency. Also, as fossil fuel sources are more often used to meet heat demand only in the cold season, the potential to reduce GHG emissions is lower.	T4. RES share in the DH sector in 2050 – 100%	-	Decarbonisation	2021-2030	Ongoing
7	PM7.	RES28.	-	Promote the use in the DH sector of waste heat generated in industry, in the waste sector or due to cooling energy	This heat is generated during chemical processes at manufacturing plants in any case, so considering that theoretically in Lithuania its annual potential is about 3 TWh, it is planned to use part of it in the district heating sector. Using the entire quantity is not possible because some industrial sites are located in areas too remote from heat consumers. A priority strand in the heat sector is the collection, storage and efficient use of ambient energy and waste energy emitted into the air by power plants, industrial facilities and buildings. Waste heat from thermal power plants can be used to heat buildings. It is planned that waste heat in the district heating sector will amount to 0.45 TWh. The use of waste heat may with high probability lead to a greater overlap of primary energy as the use of primary energy requires little waste energy but the potential to reduce GHG emissions and increase the share of RES depends on a specific situation, i.e. if biofuel is replaced, the share of GHG and RES remains unchanged.	Waste heat in the district heating sector will amount to 0.45 TWh.	-	Energy efficiency	2021-2030	Ongoing
8	PM8.	RES3.	-	Implementation of local and RES-based cogeneration power plant projects prioritising Vilnius and Kaunas	The implementation of the measure, which will result in the construction of two cogeneration plants in Vilnius and Kaunas, is being completed. The rated thermal input of newly installed high-efficiency cogeneration units is 317 MW; the installed electrical capacity of newly installed high-efficiency cogeneration units is 127 MW	The rated thermal input of newly installed high-efficiency cogeneration units is 317 MW; the installed electrical capacity is 127 MW	Support for investments in RES-based cogeneration plants	Decarbonisation	2014-2023	Ongoing
9	PM10.	APM**	-	Removal of excise duty exemption for gas oils intended for heating	As of 2023, fossil fuel subsidies for heating are expected to be phased out for coal, coke, lignite, red diesel, liquefied petroleum gas in cylinders and peat for heating. The removal of tax incentives would mean the withdrawal of the financial incentive to choose polluting fossil fuels instead of less polluting or RES-based heat sources.	T5. RES share in the decentralised sector in 2050 – 90%	Removal of excise duty exemption for gas oil	Decarbonisation	Phasing out as of 2022	Ongoing
10	PM10.	APM**	-	Removal of excise duty exemption for coal, coke and lignite used for business purposes	As of 2023, fossil fuel subsidies for heating are expected to be phased out for coal, coke, lignite, red diesel, liquefied petroleum gas in cylinders and peat for heating. The removal of tax incentives would mean the withdrawal of the financial incentive to choose polluting fossil fuels instead of less polluting or RES-based heat sources.	T5. RES share in the decentralised sector in 2050 – 90%	Removal of excise duty exemption for solid fossil fuels	Decarbonisation	Phasing out as of 2024	Ongoing
11	PM10.	APM**	-	Reinforcing economic signals	As of 2023, fossil fuel subsidies for heating are expected to be phased out for coal, coke, lignite, red diesel, liquefied petroleum gas in cylinders and peat for heating. The removal of tax incentives would mean the withdrawal of the financial incentive to choose polluting fossil fuels instead of less polluting or RES-based heat sources.	T5. RES share in the decentralised sector in 2050 – 90%	Removal of excise duty exemption for solid fossil fuels	Decarbonisation	Phasing out as of 2023	Ongoing
12	PM10.	APM**	-	Reform of the tax system through the introduction of a CO_2 tax	Along with amendments to the Law on Excise Duties, as of 2025, a carbon dioxide component is introduced for the most polluting fossil fuels and it will gradually increase every year. The exemption applies to natural gas as a transitional fuel which will not be covered by the CO_2 component. Increasing the carbon dioxide component over time could lead to a levy on the centralised procurement of the CO_2 capture service, offsetting CO_2 emissions from FF. The removal of tax incentives would mean the withdrawal of the financial incentive to choose polluting fossil fuels instead of less polluting or RES-based heat sources.	T5. RES share in the decentralised sector in 2050 – 90%	Introducing CO_2 component for fossil fuels (excluding natural gas)	Decarbonisation	Phasing out as of 2025	Ongoing
13	PM11.	EE7.	-	Replacement of boilers with more efficient technologies	It is planned to continue fossil fuel boiler replacement programmes for more efficient RES-based heat production technologies for households by providing a subsidy for the replacement of fossil fuel boilers with efficient RES-based (5G) biofuel boilers and heat pumps in residential houses not connected to DH systems throughout Lithuania. It is envisaged that when replacing fossil fuel boilers, consumers receiving support will replace equipment with heat pumps and Class 5 biofuel boilers.	Energy savings: 11 TWh between 2021 and 2030	Support for investment in boiler replacement with RES in households	Decarbonisation	2021-2030	Ongoing
14	PM16.	A4.	-	Investment support for climate-friendly farming practices in livestock farms	Biomethane production plays an important role not only in reducing the use of fossil fuels but also in the management of organic anthropogenic waste from food and agricultural industries, wastewater treatment and other sectors where organic waste is generated. The promotion of the construction of biomethane facilities requires financial support. Increasing biomethane production and delivering the latter to the natural gas transmission and distribution network would increase the share of RES. To meet the demand for biomethane simulated under the baseline scenario, 1 TWh of biomethane will be needed by 2050. Based on 2022 data, Amber Grid has issued connection conditions for 8 persons to produce biomethane with a total annual capacity of about 0.7 TWh. According to a study conducted by the Lithuanian Biomethane Association, this potential amounts to at least 1.4 TWh. However, biomethane production is a capital-intensive activity, so it is necessary to provide for support measures for the development of biomethane production.	T5. RES share in the decentralised sector in 2050 – 90%	Support for investment in biomethane production	Decarbonisation	2021-2030	Ongoing
15	PM20.	P10.	P11.1-E.	Introducing and promoting technological eco-innovations	The objective of the measure is to encourage micro-enterprises and SMEs to introduce technological eco-innovations in order to reduce the negative effects of climate change and the greenhouse effect. Activities financed: introducing and promoting technological eco-innovations. With a view to reducing the negative effects of climate change and greenhouse effect, investments in tangible assets (installations, technologies) that reduce the negative environmental impact of economic activities, promote industrial symbiosis and ensure continued environmental effects, i.e. investments in innovations (deployment thereof) in cleaner production, ensuring rational use of resources and pollution prevention techniques (e.g. modernisation/optimisation of the process to reduce negative environmental impacts and/or conserve natural resources, zero-waste production, reuse/recycling, use of waste heat (recovery, regeneration), separation of flows, etc.).	T5. RES share in the decentralised sector in 2050 – 90%	Support for investment in technological innovation in SMEs	Decarbonisation Energy efficiency	2021-2030	Ongoing
16	PM20.	P10.	P11.3-E.	Implementing modern technologies	The measure aims to encourage investments by micro-enterprises and SMEs in start-up and development of innovative production and/or innovative services, thereby enabling companies to boost labour productivity and to accelerate the development and economic growth of Lithuanian regions. Activities financed: deployment of state-of-the-art technologies by adapting existing and creating new production and service capacities to produce new and existing products and services Funding is provided to promote investment by undertakings to purchase and install new production technology lines, modernise existing production technology lines, install in-house engineering networks needed for the deployment of new or upgraded production technology lines, deploy modern and efficient technologies in service sectors, as well as operate these production and service capacities.	T5. RES share in the decentralised sector in 2050 – 90%	Support for investment in technological innovation in SMEs	Decarbonisation Energy efficiency	2021-2030	Ongoing
17	PM21.	-	P17.2.	Decarbonisation of industry	Actions relating to the transformation (decarbonisation) of the three largest emitters. This strand of action includes interventions relating to the transformation of the largest industrial emitters (GHG reduction) and the necessary preparatory actions to be taken at national level (funding projects/feasibility studies for the most polluting industries). In the Commission's country report, Lithuania listed in Annex D three areas with the highest greenhouse gas (GHG) intensity: Kaunas (Achema), Šiauliai (Akmenės cementas) and Telšiai (Orlen Lietuva). BACKGROUND: based on expert analysis of social, economic and environmental criteria, it was confirmed that it was Kaunas, Šiauliai and Telšiai Regions that should be considered the most affected by the transition to low-carbon technologies, followed by Klaipėda Region, for which only indirect effects were identified by the experts. The experts based the allocation of JTF funds to the proposed interventions on the following principles: 1) prioritising investments in the most polluting industries (decarbonisation of the largest emitters); 2) not all the transition projects planned by the three companies will be developed and implemented within the timeframe envisaged. The Commission staff working document on the TJTP was also drawn up providing an interpretation of the provisions of the JTF Regulation and clarifying that the TJTP is to target specific territories most negatively affected by the transition, in particular with regard to expected job losses and the transformation of production processes of the most greenhouse gas-intensive industrial installations. In accordance with the expert analysis, Klaipėda Region is not viewed as exposed to a significant impact and therefore, taking this provision into account, no JTF funds are foreseen for Klaipėda.	T3. Reduce GHG emissions to 0% by 2050.	Support for investments in the industry sector's energy transformation	Decarbonisation Energy efficiency	-	-
18	PM22.	P9.	P10.1-E.	Promoting the replacement of polluting technologies with less polluting ones	The measure is aimed at companies participating in the EU Emissions Trading System. Intended to co-finance projects that replace polluting production technologies with less polluting ones, BAT implementation, etc. Activities supported: investments in tangible assets (installations, technologies) which, when installed, reduce the negative environmental impact of economic activities and ensure a continuous environmental impact, i.e. investments in innovations (deployment thereof) in cleaner production using methods of rational use of resources and pollution prevention (e.g. modernisation/optimisation of the process to reduce negative environmental impacts and/or conservation of natural resources, use of excess heat (recovery, regeneration), separation of flows, etc.), investments in materials, installation works, equipment installation costs including the commissioning and fine-tuning of equipment. Improvement of products/services or technological processes to reduce or avoid negative environmental impacts due to air pollution, waste water pollution and waste generation. Support will be granted in accordance with the provisions of Article 14 of the General Block Exemption Regulation.	T3. Reduce GHG emissions to 0% by 2050.	Support for investments in the energy transformation of the industry sector	Decarbonisation Energy efficiency	2021-2030	Ongoing
19	PM24.	RES6.	P6.2-E.	Using renewable energy sources in industry	Activities financed: installation of RES-based energy production capacities, development and deployment of new technologies for more efficient use of RES in industrial enterprises in order to use energy to meet the internal needs of enterprises themselves and to enable the supply of excess energy to other industrial enterprises or its transfer to district energy grids. Prospective applicants include SMEs and large industrial companies.	T5. RES share in the decentralised sector in 2050 – 90%	Support for investment in technological innovation	Decarbonisation	2021-2030	Ongoing
20	PM25.	-	P18.	Industry 4.0 LAB Net-Zero Plan: promoting innovation to combat climate change. Boosting demand	Promote the development of innovative green products and services and support the circular economy and the green transition of the industry. There will be a financial instrument and a specialised knowledge exchange platform established to promote environmentally-friendly products and technologies. The measure aims to: Establish Hubs for Circularity. Such hubs would encourage the green and digital transformation. Possible activities of such hubs include a) infrastructure investment; b) investments in ecosystem facilitation and international networking; c) counselling services on green innovation; d) investment in high TRL (6 to 9) R&D activities. Prospective beneficiaries of the measure include research centres and digital innovation centres.	T3. Reduce GHG emissions to 0% by 2050.	Promoting the industry sector's energy efficiency and sustainability awareness raising	Decarbonisation Energy efficiency	2022-2026	Ongoing
21	PM26.	-	P24.	A single national measurement system to track progress in business, industry and energy use and pollution reduction	The objective of the measure is to establish a benchmarking mechanism to identify progress in energy use in business, industry and services (energy intensity, GHG emissions) and to rank progress. The proposal states that, in order to support the progress of businesses towards becoming more sustainable and competitive, a single national metering system ('the system') is needed to encourage the declaration of own energy performance and progress tracking. The system should include: - final energy consumption and developments; - energy intensity indicator: energy consumed per 1 output/service unit; - GHG emissions Scope 1,2 and 3; - origin of the energy consumed and the percentage of total consumption; - number of energy efficiency-enhancing measures put in place and savings (%, kWh; CO2 eq); - etc. The result of the system is a generalised derived Energy Performance Index with evaluation scales.	T3. Reduce GHG emissions to 0% by 2050.	Tracking of industrial energy efficiency indicators and progress	Decarbonisation Energy efficiency	2022-2024	Ongoing
22	PM27.	P1.	P1-E.	Implementing alternative fuel measures in industrial enterprises	The objective of the measure is to encourage the deployment of alternative fuels measures in large industrial enterprises. This measure would help to address the slow pace of development of this type of infrastructure in large enterprises more quickly. As emissions volumes in the market decrease and prices increase intensively, companies are looking for other possible power generation solutions that would contribute to the reduction of GHG emissions. Prospective beneficiaries of the measure are legal entities	T5. RES share in the decentralised sector in 2050 – 90%	-	Decarbonisation	2019-2027	Ongoing
23	PM28.	P7.	P8-E.	Reducing the use of coal, coke and lignite	The measure is aimed at non-ETS industry. Since coal is the most polluting fossil fuel in terms of GHG emissions, the draft Law on Excise Duties provides that from 1 January 2023 the excise duty rate on coal, coke and lignite used for business purposes will be equal to the excise duty rate on these products used for non-business purposes (for coal – EUR 7.53/t, for coke and lignite – EUR 8.98/t). In 2024 and 2025 respectively, excise duties on these products will consistently increase.	T5. RES share in the decentralised sector in 2050 – 90%	Removal of excise duty exemption for solid fossil fuels in the industry sector	Decarbonisation	2024-2030	Ongoing

A9. Analysis of new strategies and policy measures

No	Study No.	NECAP No.	Development Programme progress measure No.	Brief description of the potential new strategy or policy measure	Main objective of new strategy or policy measure	Projected reduction in greenhouse gas emissions	Primary energy savings, GWh/year	Impact on the share of high-efficiency cogeneration	Share of renewable energy sources in the national energy mix and in the heating and cooling sector	References to national financial programming and cost savings for the state budget and market participants	Envisaged state support measures, if any, with an indication of the annual budget and a possible aid element
1	PM14.	APM**	-	Limiting the expansion of the natural gas network to newly constructed buildings in the DH area	Based on the results of energy performance certificates for buildings, more than 90% of individual buildings with energy performance of Class A++ will be heated with heat pumps while multi-apartment buildings with energy performance of Class A++ will be heated with district heating or heat from heat pumps. A policy measure is planned that would limit the connection of buildings newly constructed in the DH area to the natural gas network. As the use of other fossil fuels would not be allowed either, the latter would be connected to district heating networks or RES-based heat solutions would be implemented. This would allow for more efficient use of public and private finances to achieve the objective of a climate-neutral economy.	Up to 1.1 million tonnes	-	-	Up to 16%	No funding needed	-
2	PM23.	-	P1.	Study to quantify the need for clean, green and renewable energy industry	Measure to finance an exploratory quantitative study targeting the Lithuanian industry's consumption needs of clean, green and renewable energy up to 2030 in line with the decarbonisation targets for the Lithuanian industry. The study would help to identify green electricity consumption by individual industries and industry as a whole and would include an assessment of potential needs for green hydrogen for individual industries by 2030.	-	-	-	-	Depends on the scope and composition of the study	Depends on the scope and composition of the study
3	PM12.	-	-	Limiting the use of solid fossil fuels for heating premises by location	A policy measure is planned to allow municipalities to restrict the use of solid fossil fuels by location. The draft policy measure is now open for public consultation. The measure aims primarily at reducing particulate matter and other pollutants in densely populated areas where pollution damage is the greatest rather than at replacing GHG emissions or increasing RES share. Since only solid fossil fuels will be prohibited, boiler replacement may not be necessary for most consumers. Consumers would switch to biofuels, leading to a significant reduction in GHG emissions and an increase in the share of RES in heat production.	Up to 671,000 tonnes (whether nationally or in specific areas)	-	-	Up to 7%	Indirectly needed funding for the boiler replacement programme	The need for funds will be defined by the size of the areas where fossil solid fuel boilers will be prohibited and the number of disadvantaged households
4	PM13.	APM**	-	Elimination of excise duty and introduction of a carbon dioxide component for natural gas	From a consumer's financial perspective, gas remains a highly competitive solution for those who already have a natural gas inlet. It is proposed to remove excise duty exemption for gas and introduce a carbon component for natural gas, which would allow two objectives to be achieved: •Encourage consumers to opt for a RES-based heat source •Raise funds needed to offset GHG emissions generated by natural gas to consumers who do not capture CO_2 at the point of consumption. Capture could take place in several large RES fuel boilers in order to exploit economies of scale.	Up to 1 million tonnes	-	-	Up to 16%	Indirectly needed funding for the boiler replacement programme	The need for funds will be defined by the size of the areas where fossil solid fuel boilers will be prohibited and the number of disadvantaged households
5	PM15.	-	-	Limiting the expansion of the natural gas network to newly constructed buildings in all areas	It is proposed to restrict the connection of new buildings to the natural gas network throughout Lithuania. Investments in the development of the natural gas network in parallel with the objective of reducing the use of fossil fuels are inappropriate and create additional barriers to the future conversion of fossil fuels to renewable energy sources and increase the consumption of biomethane which has limited supply.	Up to 1.1 million tonnes	-	-	Up to 16%	No funding needed	-
6	PM17.	-	-	Promoting research into hydrogen integration	In order to maximise the effect of switching from fossil fuels, i.e. natural gas to RES but using the existing infrastructure, it is appropriate to promote the blending of green hydrogen into natural gas in the transmission and distribution network. Since this is essentially a new and untested technology, research is needed to assess the network capabilities and optimal solutions for the efficient addition of hydrogen to natural gas in Lithuania. Currently, there are no established technologies on the market for the incorporation of green hydrogen into the gas supply system but, according to the Joint Research Centre's (JRC) study on blending hydrogen from electrolysis into the European gas grid, 5-10% of green hydrogen can be injected into the existing gas grid without significant investment in the gas grid or equipment used by consumers. Moreover, research by the Technical Association of the European Gas Industry shows that up to 10% of the volume of gas can be blended into existing infrastructure without significant infrastructure investment. Accordingly, within its scope the Study estimates that up to 10% of green hydrogen will be added to the gas grid by 2050. Lithuania does not currently evaluate the potential and feasibility of integrating hydrogen into the gas supply infrastructure, and it is therefore appropriate to first assess the context, network capabilities, financing needs and other technical circumstances.	Depends on the findings of hydrogen integration studies	-	-	Depends on the findings of hydrogen integration studies	Depends on the scope and composition of the study	Depends on the scope and composition of the study
7	PM18.	-	-	Promoting the development of hydrogen production facilities	In order to maximise the effect of switching from fossil fuels, i.e. natural gas to RES but using the existing infrastructure and based on relevant research it is appropriate to promote the blending of green hydrogen into natural gas in the transmission and distribution network. It is likely that the production and incorporation of green hydrogen into the gas grid may not be financially viable at the start of operations and financial support will be required. The need for support should be detailed following the implementation of Measure PM17.	Depends on the findings of hydrogen integration studies	-	-	Depends on the findings of hydrogen integration studies	Depends on the findings of hydrogen integration studies	Depends on the findings of hydrogen integration studies
8	PM19.	-	-	Limiting the use of solid fuels for heating premises by residential location	A policy measure is proposed to allow municipalities to restrict the use of renewable solid fuels (biofuels) by location for those facilities that do not have particulate matter filters. The restriction is relevant in densely populated areas where there is an accumulation of higher quantities of particulate matter pollution from boilers in buildings and transport. The measure would make it possible to reduce emissions of particulate matter from all fuels including RES. While maintaining the same principle of increased financing for the replacement of these boilers by banning the use of the fuel type in these areas, the expected effect on public finances due to the change in infrastructure would be important.	-	-	-	The RES share does not change when biofuels are replaced	Indirectly needed funding for the boiler replacement programme	The need for funds will be defined by the size of the areas where solid fossil fuel boilers will be banned and the number of disadvantaged households
9	PM29.	-	-	Changes in the regulatory environment for waste heat	In order to integrate more waste heat, changes in the regulatory environment may be necessary, not only to enable but also to encourage the integration of waste heat or, where appropriate, to make it obligatory. For the sake of clarity, there is need for more data to be collected during pilot projects	-	-	-	-	No funding needed	-
10	PM30.	-	-	Feasibility assessment of the development of district cooling networks	To develop cooling networks, it is necessary to carry out a study and evaluate both the need for cooling networks, technical possibilities and possible benefits for the network. For the sake of clarity there is a need for more data to be collected from pilot data, actual cooling demand in various buildings and cooling consumption characteristics	-	-	-	-	Depends on the scope and composition of the study	Depends on the scope and composition of the study