REPUBLIC OF CROATIA
MINISTRY OF ECONOMY AND SUSTAINABLE DEVELOPMENT

Report on implementation of policies and measures that reduce greenhouse gas emissions by sources or enhance removals by sinks

Republic of Croatia

REPORT ON IMPLEMENTATION OF POLICIES AND MEASURES THAT REDUCE GREENHOUSE GAS EMISSIONS BY SOURCES OR ENHANCE REMOVALS BY SINKS

REPUBLIC OF CROATIA

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REPUBLIC OF CROATIA

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Contents

1. Introduction

'Report on implementation of policies and measures that reduce greenhouse gas emissions by sources and enhance removals by sinks' (hereinafter: the Report) is an integral part of the national system for policies and measures as well as projections of greenhouse gas emissions related to the fulfilment of commitments under the United Nations Framework Convention on Climate Change (hereinafter: the Convention) and the Paris Agreement. The Republic of Croatia is required to report to the European Commission on monitoring the implementation of these policies and measures and emission projections, based on the EU legislation.

The legal basis for preparation of the Report in the national legislation is in Act on Climate Change and Ozone Layer Protection (OG 127/19).

Regulation (EU) No 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council (hereinafter: Regulation (EU) No 2018/1999) and Commission Implementing Regulation (EU) No 2020/1208 of 7 August 2020 on structure, format, submission processes and review of information reported by Member States pursuant to Regulation (EU) 2018/1999 of the European Parliament and of the Council and repealing Commission Implementing Regulation (EU) No 749/2014 (hereinafter: Implementing Regulation (EU) No 2020/1208) are applicable regulations of the European Union which prescribe obligations and way of reporting for Member States.

Article 18 of the Regulation (EU) No 2018/1999 prescribes the content of the report. Report on the implementation of policies and measures to reduce emissions and increase removals of greenhouse gases for 2021 therefore has:

- Description of national system for reporting on policies and measures and for reporting on projections of emissions by sources and removals by sinks of greenhouse gases,
- Information regarding Low-Carbon Development Strategy until 2030 with a view to 2050,
- Objectives of the policy and measures,
- Description of the policy and measures,
- Type of policy instruments,
- Status of implementation of the policy or measure,
- Indicators for the projections with the aim of policies and measures implementation assessment,
- Quantitative estimates of the effect of policies and measures on emissions by sources and removals by sinks of greenhouse gases,
- An assessment of the contribution of the policy or measure to the realization of Low-Carbon Development Strategy until 2030 with a view to 2050,
- Amount of annual national emission allocation,
- Anticipated progress in meeting the emission limits to the amount of annual national quota,
- Information on planned additional policies and measures to achieve greater emission limits of the amount of annual national quota,
- Information on the link between different policies and measures.

2. National system for reporting on policies and measures and for reporting on emissions projections by GHG sources and removals by sinks

The Ministry of Economy and Sustainable Development is responsible for the overall national policy of environmental protection, including climate change and reporting on the implementation of policies and measures and on emission projections by sources and removals by sinks of greenhouse gases. The Institute for Environment and Nature, which operates within the Ministry of Economy and Sustainable Development is responsible for organizing the preparation of the Inventory of greenhouse gas emissions, data collection, preparation of quality assurance and quality control plan and selection of an authorized institution for a three-year period. It is also responsible for organizing the preparation of the Report on the implementation of policies and measures to reduce emissions and enhance sinks of greenhouse gases and Report on projections of greenhouse gas emissions by sources and their removals by sinks. Update of the listed reports is organised in two-year cycles, according to Regulation (EU) No 2018/1999.

Ekonerg - Energy Research and Environmental Protection Institute is an institution that was awarded in a public tender for a three-year period to prepare reports on the Inventory of greenhouse gas emissions, Report on projections of greenhouse gas emissions by sources and their removals by sinks and Report on policies and measures to reduce emissions and enhance sinks of greenhouse gases. The current contract expires in 2021, when a new tender will be published.

In accordance with the Act on Climate Change and Ozone Layer Protection (OG 127/19) for monitoring and evaluation of the implementation and planning of policies and measures for mitigation and adaptation to climate change in the Republic of Croatia as well as participating in the review and giving opinions on Report on implementation of policies and measures that reduce greenhouse gas emissions by sources or enhance removals by sinks and Report on projections of greenhouse gas emissions by sources and their removals by sinks, the Commission for inter-sectoral coordination of policies and measures for mitigation and adaptation to climate change (OG 9/18) was established. The Committee members include representatives of relevant central government bodies at the level of assistants to the Ministers. The composition of the Commission, tasks and functioning of the Commission is determined by the Croatian Government on the proposal of the ministry responsible for environmental protection.

3. Information regarding Low-Carbon Development Strategy until 2030 with a view to 2050

Low-Carbon Development Strategy of the Republic of Croatia until 2030 with a view to 2050 is a basic document by which the obligations to reduce greenhouse gas emissions will be transferred into certain sectoral policies. The goal of the Low-Carbon Development Strategy is to achieve a competitive low-carbon economy by 2050, in line with the European Strategic Guidelines and in accordance with the obligations of the United Nations Framework Convention on Climate Change (UNFCCC).

The Strategy is a fundamental document in the field of climate change mitigation and a main economic, development and environmental strategic document. The Strategy lays opportunities to stimulate economic growth through innovation, the transfer of advanced technologies and structural change.

Low-Carbon Development Strategy provides the basis for policy decisions and guidelines that will need to be implemented by all sectors in order to significantly reduce greenhouse gas emissions. Low-Carbon Development Strategy should enable a transition to a low-carbon and more competitive economy based on sustainable development.

Low-Carbon Development Strategy until 2030 with a view to 2050 is prepared and sent to the Government of the Republic of Croatia for adoption. Once adopted, it will be submitted to the European Commission and the UNFCCC Secretariat.

An Action Plan for the implementation of the Low-Carbon Development Strategy for a five-year period is being prepared.

4. Description of policies and measures included in the projections

4.1. General information

Policies and measures that are subject of this report are included in the 'with existing measures' and 'with additional measures' scenarios in the "Report on projections of greenhouse gas emissions." The above report has been prepared as a separate document.

Policies and measures to reduce emissions from sources and increase sinks of greenhouse gases are shown separately for the following sectors:

- Energy,
- Transport,
- Industrial processes and product use,
- Waste,
- Agriculture,
- Land use, land use change and forestry (LULUCF),
- other (cross-cutting) policies and measures.

4.2. Energy

The overview of the strategic and planning framework for reduction of emissions in the energy sector is shown in the Figure 4-1.

Important current strategies and plans include Energy Development Strategy of the Republic of Croatia until 2030 with a view to 2050 (OG 25/20), Long-Term Strategy for Mobilising Investment in the Renovation of the National Building Stock (OG 28/19), Integrated Energy-Climate Plan of the Republic of Croatia for the period from 2021 to 2030 and Program for the Energy Efficiency in Heating and Cooling for the period from 2016 to 2030.

Planning periods of some of the existing plans have expired, but new policy and measures documents are either available in draft versions or in the process of development. Among them is the Low-Carbon Development Strategy until 2030 with a view to 2050.

The measures described in this chapter are taken from the Energy Development Strategy of the Republic of Croatia until 2030 with a view to 2050, Integrated Energy-Climate Plan of the Republic of Croatia for the period from 2021 to 2030, proposal for Low-Carbon Development Strategy of the Republic of Croatia until 2030 with a view to 2050 and legislative framework.

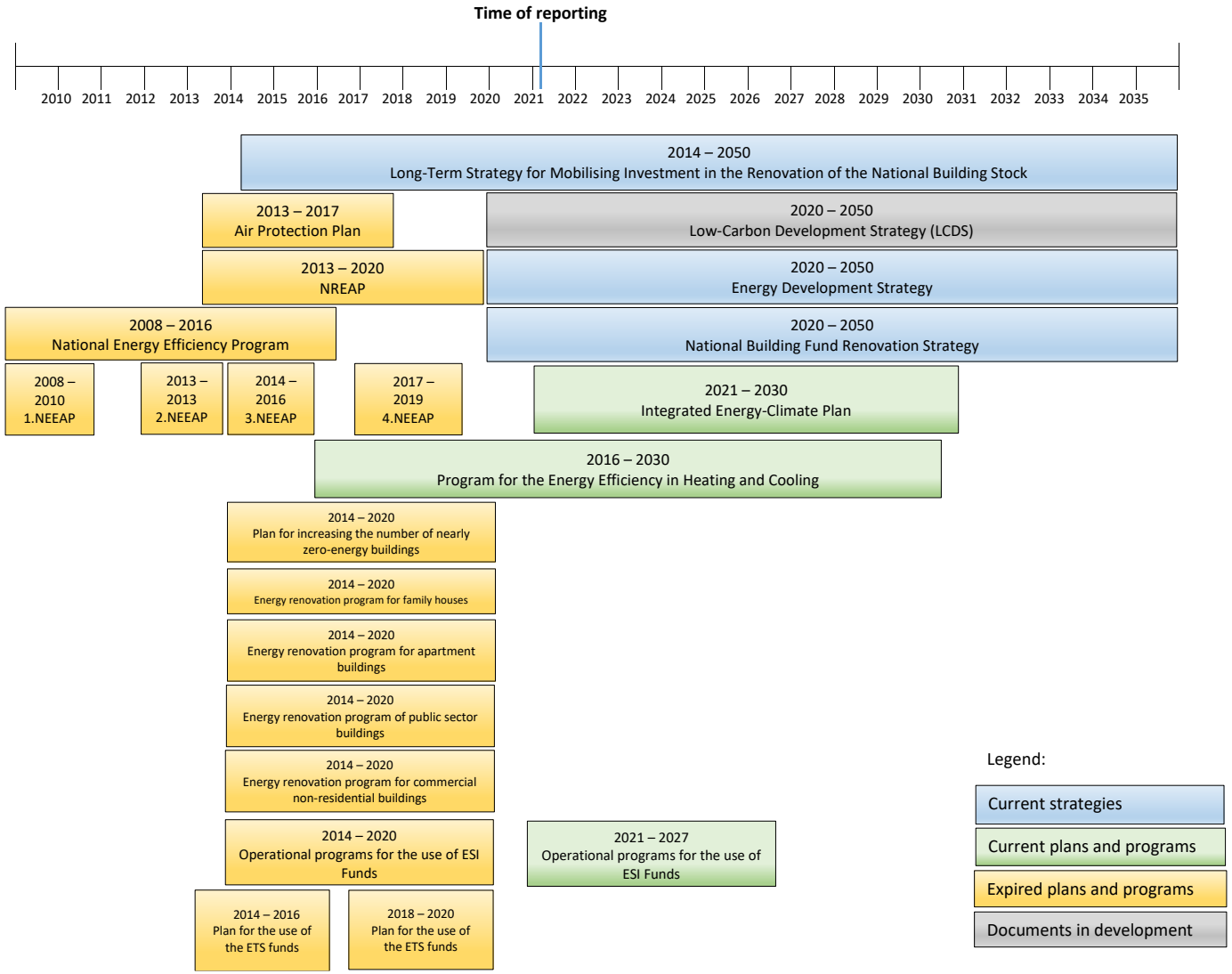

Figure 4-1: Overview of the strategical and planning framework for reduction of GHG emissions in the energy sector

MEN-1: Promoting nZEB construction and renovation standards

After 31 December 2018 all public buildings in the Republic of Croatia in which they reside or are owned by public bodies must be constructed according to the nZEB standard, and the obligation for all other newly constructed buildings occurs after 31 December 2020. These legal provisions ensure that all newly constructed buildings from 2021 onwards are according to the nZEB standard. However, in order to ensure the correct application of these directives, but also to encourage energy renovation of buildings according to the nZEB standard, in the next period it is planned to conduct a series of information and educational activities to promote construction and renovation according to the nZEB standard.

MEN-2: Energy renovation programme for apartment buildings

This program should be arranged as a continuation of the implementation of the Program of energy renovation of apartment buildings from the period from 2014 to 2020. For this purpose, it is necessary to plan funds from the ESI Funds for the next programming period 2021-2027 (with implementation by 2030), while implementation procedures need to be significantly simplified, especially in public procurement implementation. The technical conditions should also remain as in the existing Program. Therefore, it is necessary to reduce the thermal needs of the building by at least 50%. It is necessary to encourage that renovation is performed according to the nZEB standard. In addition, establishing a special fund from which costs will be reimbursed to energy-poor households or households at risk of energy poverty should be considered, in order to remove the obstacle of securing a sufficient number of co-owners' consents for energy recovery. The implementation of the Program must be accompanied by strong promotional activities, while technical assistance should be provided to applicants. It is necessary to ensure energy consumption monitoring before and after energy renovation, for which it is necessary to create preconditions within the EMIS (Energy Management Information System). The plan includes the renovation of around 520,000 m^2 of apartment buildings per year.

MEN-3: Energy renovation programme for single family houses

The program should be conceived as a continuation of the implementation of the Program for energy renovation of family houses from the period from 2014 to 2020, with co-financing from the Environmental Protection and Energy Efficiency Fund. The program should leave the possibility of implementing individual measures, with respect to the order of implementation of measures (e.g. the replacement of a heating system with a more efficient system that uses RES should only be possible for those houses that have good thermal characteristics and do not need enclosure interventions). It is necessary to strongly encourage the renovation according to the nZEB standard. The implementation of the Program must be accompanied by strong promotional activities. The plan includes the renovation of around 350,000 m^2 of family houses per year.

MEN-4: Energy renovation programme for public buildings

The measure is based on the Programme for the Energy Renovation of Public Buildings for the Period from 2014 to 2015. For this purpose, it is necessary to plan funds from the ESI Funds for the next programming period 2021-2027 (with implementation by 2030). Funds need to be planned to ensure both the activation of private capital and the ESCO market, especially for buildings that are suitable for such financing models (buildings with continuous work, such as hospitals, penitentiaries, homes for the elderly, etc.) and belonging to the category of central government buildings. Market models need to be combined with grants in order to achieve nZEB standards. For buildings that are not suitable for market

models, it is necessary to provide grants under the same conditions as in the previous program. Renovation of public sector buildings needs to be directed towards the nZEB standard wherever technically feasible. The plan includes the renovation of around 350,000 m^2 of public buildings per year.

MEN-5: Energy renovation programme for buildings that have the status of cultural property

Protected buildings in terms of the Energy Renovation Programme of buildings that have the status of cultural property are those that can be classified into two categories: individually protected cultural property (individual building and construction complexes) and buildings located within the protected cultural and historical ensemble. The program does not include buildings protected as a preventively protected cultural property, or buildings registered as cultural property. Two basic approaches to energy renovation of buildings that are the subject of this Programme have been developed: a complete (integrated) approach and an approach with the application of individual energy renovation measures.

MEN-6: Energy renovation programme for public lighting

Energy renovation of public lighting in the Republic of Croatia is currently being carried out using ESI funds from the European Regional Development Fund. Given the significant potential that exists in public lighting systems, it is planned to use ESI funds in the next programming period from 2021 to 2027. By programming a larger allocation of funds for this purpose, the existing potential could be used by the end of 2030, which is estimated at around 225-280 GWh. At the same time, the renovation of public lighting would meet the technical standards for road lighting, which means that traffic safety would be improved and light pollution would be reduced. The financing models that will be used in the next period should also enable the mobilization of private capital through energy services or public-private partnerships, in order to achieve the best possible multiplier effect. Models that are to be considered include interest rate subsidies on commercial loans/required returns to the service provider and guarantees, while it is necessary to provide grants for projects requiring investment in new public lighting infrastructure (poles, additional luminaires, etc.) to meet standard lighting requirements.

MEN-7: Energy management in the public sector

The public sector in Croatia is obliged to systematically manage energy, which is specifically regulated by the Energy Efficiency Act (OG 127/14, 116/18, 25/20), or the Ordinance on Systematic Energy Management (OG 18/15, 6/16). The basis of this measure is an Information System for Energy Management (ISGE). The goal is to include and regularly monitor with ISGE all public sector buildings and public lighting systems by the end of 2030.

MEN-8: Energy management in the business (service and production) sector

Although large companies are obliged to conduct regular energy audits, this obligation does not ensure continuous care for energy consumption in the company nor does it cover small and medium-sized enterprises. In order to encourage companies to introduce certified energy management systems (such as ISO 50001), by 2020 a comprehensive analysis of the possibilities of using the tax system (including taxes and parafiscal levies) will be made to encourage companies to introduce such a system and thus ensure continuous care for energy consumption.

MEN-9: Informational accounts

One of the basic measures of informing consumers is the legal obligation of suppliers for submitting to consumers at least once a year information invoices, which contain information on energy billing and previous consumption of the end customer for billing meters that are the subject of the contract, which include comparison with average regular consumption or reference customer from the same category. It is desirable to reduce the frequency of application of this legal provision from the annual level to the monthly level, and it is absolutely necessary to ensure that the energy regulatory body monitors these obligations of energy suppliers. In addition, based on these regulations, it is necessary to further inform consumers about the content and meaning of bills, which is the task of the National Coordination Body for Energy Efficiency.

MEN-10: Energy efficiency information

Informing the general public and target groups will be carried out by organizing targeted info-campaigns related to specific programs to promote energy efficiency, especially energy renovation of buildings. National Coordination Body for Energy Efficiency will maintain a national energy efficiency portal and ensure continuous promotion of energy efficiency and energy services through the provision of up-to-date information. In the next period, special attention should be given to informing consumers about the duties of the supplier within the system of obligations.

MEN-11: Energy efficiency education

Training will be achieved through the continued implementation of the existing measure and the adaptation of activities to the needs and the real situation. It is especially important to work systematically on attracting young people to construction and other technical occupations, which will in the long run contribute to the availability of professional capacities for the implementation of energy renovation of buildings, which is the basis for achieving energy and climate goals. Through education in the field of energy efficiency, the principles of green building will be set and applied: it is necessary to encourage the promotion and implementation of green building (construction according to the principles of sustainability) as an important segment of sustainable development and the circular economy.

MEN-12: Energy efficiency of the electricity transmission network

The current levels (2018) of losses in the transmission network of the Republic of Croatia amount to about 2% of the transmitted electricity. An important characteristic of the Croatian transmission network, both in terms of plant safety and support of market activities, and in terms of losses is the extremely strong connection with neighbouring power systems (interconnections). While on the one hand this significantly increases the security of the plant, on the other hand due to transit the network losses increase. In the period until 2030, measures related to the management of the power system and measures related to the development of the transmission network will continue to be implemented, for optimal (safe and efficient) management of the facility.

MEN-13: Reduction of losses in the distribution network and introduction of smart grids

In the period until 2030, activities will continue to reduce technical and non-technical losses in the electricity distribution network. A detailed analysis will determine the causes of increased losses in certain parts of the network and priorities for the implementation of activities to reduce technical and

non-technical losses. Based on the experience from the implementation of the pilot project of introducing advanced networks in pilot areas with the use of ESI funds, it is necessary to program the continuation of the use of ESI funds in the next programming period from 2021 to 2027 for further development of advanced networks.

MEN-14: Increasing the efficiency of the district heating systems

In the existing large centralized heating systems, a large source of losses is the deteriorated steam and hot water network, and this measure foresees the continuation of the replacement of deteriorated steel hot water pipes and steam lines with new pre-insulated pipes and a technological shift to fourth-generation district heating. In smaller systems with their own boiler room, it is necessary to enable the reconstruction of boiler rooms, in particular by replacing them with high-efficiency cogeneration systems or systems using heat pumps. The measure also envisages the development of new heating and cooling systems, which use high-efficiency cogeneration or renewable energy sources.

MEN-15: Increasing the efficiency of the gas transport network

The potential for increasing the energy efficiency of the gas transport system is largest in the consumption of natural gas, which is mostly (70%) consumed for preheating natural gas before delivery to customers, and only a small part (30%) for heating business premises and various technological reliefs, i.e. system exhaust. Activities to improve energy efficiency will be implemented in accordance with the Ten-Year Development Plan of the Gas Transport System of the Republic of Croatia 2018-2027.

MEN-16: Information, education and capacity building for RES use

Dissemination of information to the general public and target groups will be conducted through the organization of targeted informational campaigns related to investments in systems using renewable energy sources, especially in systems for own needs. Information, education and capacity building for the use of RES will be provided at the national level.

MEN-17: Spatial planning prerequisites for RES use

Defining guidelines and criteria for the regulation of specific spatial-functional elements for the use of RES, more advanced and cross-sectoral harmonization of spatial planning conditions for determining areas suitable for the construction of RES plants at the state, county and local level. Guidelines and criteria for determining the spatial planning conditions for the use of space intended for the construction of facilities for energy recovery of RES (specific spatial-functional elements in space) and for the exploitation fields of geothermal water for energy purposes will be adopted. Conditions for determining locations and construction of RES plants will be integrated into spatial plans at the state, county and local levels.

MEN-18: Promoting the RES use for production of electricity and heat

Providing financial incentives for the development of projects for the use of RES for the production of electricity and heat. Encouraging the use of RES for electricity and heat production will be implemented at the national level.

MEN-19: Development of the regulatory framework for RES use

The existing legal framework needs to be amended and procedures and practices developed. The goal is to fully adopt the regulatory framework and established procedures at the national level by 2022.

MEN-20: Integrated planning of security of energy and energy products supply

The overarching measure to increase energy security is the integrated planning of security of supply in the context of all energy products and all energy systems. Integrated planning should be harmonized at the local, regional and national level, and in accordance with energy planning carried out by energy entities for energy infrastructure throughout the territory of the Republic of Croatia. In addition, integrated planning needs to be aligned with planning for alternative fuels and infrastructure for alternative fuels.

MEN-21: Construction and use of energy storage

In order to increase the energy storage capacity of the system and increase the regulatory capacity of the electricity system, it is planned to build additional reversible power plants with a capacity of 150 MW before 2030, development of heat storage tanks for end customers, batteries, charging stations for electric vehicles that allow energy storage, and the use of other innovative energy storage technologies.

MEN-22: Development and maintenance of centralised thermal systems

Centralised thermal systems have been identified as one of the priorities of the energy policy of the Republic of Croatia. The most significant potential for the development and improvement of existing centralised thermal systems is primarily to increase the energy efficiency of production units, infrastructure and equipment at end-users and to increase reliability and security of supply. Therefore, this measure envisages the maintenance and upgrading of existing CTS systems, stopping the trend of disconnecting customers from the CTS systems, introducing heat storage tanks powered by electricity, and using RES for CTS as well as replacing existing CTS production with renewable sources (e.g. biofuels) and use of heat pumps.

MEN-23: LNG terminal construction

The size of the liquefied natural gas terminal depends on the interest of market. In the first phase, the construction of the FSRU vessel (Floating Storage Regasification Unit) is planned, whose maximum annual natural gas supply will amount up to 2.6 billion cubic meters. The planned maximum capacity of natural gas supply from the terminal, and indirectly its size and capacity, is conditioned by the maximum capacity of the gas pipeline system. Terminal commissioning is planned for the beginning of 2021.

MEN-24: Refinery modernization and transformation

Implementation of investments in modernization and improvement of production for maintaining the competitiveness of refineries.

MEN-25: Measures to increase energy efficiency by improving processes and process units

Increasing energy efficiency is achieved by implementing measures that contribute to reducing energy intensity through more rational use of energy and raw materials, by adding additives and by altering

production processes and equipment at pumping stations and refineries, which contributes to reducing fugitive emissions.

MEN-26: Methane flaring

In order to reduce fugitive emissions, instead of fuming methane, methane is burned on a torch. In this way, methane emissions are reduced by 95-99% depending on the efficiency of the flares.

MEN-27: Development of the electricity transmission network

Croatian Transmission System Operator ltd. is, according to the Energy Act (OG 120/12, 14/14, 95/15, 102/15, 68/18), an energy entity responsible for the management, operation and guidance, maintenance, development and construction of the transmission electricity network. According to the Electricity Market Act (OG 22/13, 95/15, 102/15, 68/18, 52/19), the Croatian Transmission System Operator, as the owner of the 110 kV to 400 kV transmission network, is obliged to develop and adopt ten-year, three-year and one-year investment plans for the development of the transmission network. Ten-year development plans are update annually. At the time of writing, the Ten-Year Transmission Network Development Plan 2019-2028 was relevant, with detailed elaboration for the initial three-year and one-year periods.

MEN-28: Development of gas transmission system

Transmission system development planning is carried out through the preparation of the Ten-Year Gas Transmission System Development Plan, the development of which is the responsibility of the gas transmission system operator pursuant to the Gas Market Act (OG 18/18, 23/20). The gas transmission system operator is the company Plinacro ltd. Ten-year plans for the development of the gas transmission system are update on an annual basis. At the time of writing, the Ten-Year Plan for the Development of the Gas Transport System of the Republic of Croatia 2018-2027 was relevant.

MEN-29: Elaboration of the regulatory framework for active participation of customers on the electricity market

In order to enable the active role of network users in the electricity market, it is necessary to amend the existing regulatory framework in an appropriate manner, especially through the introduction of aggregators as market participants and through enabling the launch of a pilot project to provide ancillary services. Pilot projects will analyse in detail the services that users can provide to the distribution or transmission system operator. Possible types, scope, method and period of providing ancillary services will be analysed. Barriers to the use of ancillary services will be identified and ways to remove them will be suggested. Previously, an analysis of the potential for the provision of ancillary services and flexibility services with the response of consumption by network users will be conducted, based on which the method and model of providing ancillary services and the response of consumption by network users will be defined.

MEN-30: Introduction of advanced consumption metering systems and data management

In order to enable further development of energy markets and the active role of consumers in energy markets, advanced metering devices and systems at consumption level will be introduced.

MEN-31: Adoption and implementation of the Programme for Energy Poverty Reduction

Mitigation of energy poverty and the degree of vulnerability to it and establishment of an energy poverty monitoring system.

4.3. Transport

MTR-1: Providing information to consumers on fuel economy and CO_2 emission of new passenger cars

Pursuant to the Ordinance on Availability of Information on Fuel Economy and CO_2 Emissions from Passenger Cars (OG 7/15) each supplier of new passenger cars intended for sale shall provide consumers with information on the fuel consumption rate and specific CO_2 emission of passenger cars. Central body of state administration responsible for the road traffic safety, on the basis of the Ordinance once a year, not later than 31 March of the current year, makes a Guidelines on cost-effectiveness of fuel consumption and CO_2 emission from new passenger cars available for purchase on the market in the Republic of Croatia. The Guidelines contains required information for each model of new passenger cars available in the domestic market. Extension of information to other categories of motorized road vehicles will be implemented within the measure.

MTR-2: Special environmental fee for motor vehicles

The existing system of payment of a special environmental fee for motor vehicles is regulated by the Act on the Environmental Protection and Energy Efficiency Fund (OG 107/03, 144/12), and the Regulation on unit charges, corrective coefficients and detailed criteria and standards to determine the special environmental fee for motor vehicles (OG 114/14, 147/14, 2/21). The special fee is charged taking into consideration the type of engine and fuel, engine operating volume, type of vehicle, CO_2 emissions and vehicle's age.

MTR-3: Special tax on motor vehicles

Based on the 'polluter pays' principle, the model's calculation is based on CO_2 emissions into the air from motor vehicles. The special tax is determined on the basis of the sales or market price of the motor vehicle, CO_2 emissions expressed in grams per kilometer, engine volume in cubic centimeters and the level of greenhouse gas emissions. This special tax encourages the purchase of energy efficient vehicles and vehicles with lower greenhouse gas emissions. The implementation of the measure is ensured through the enactment of the Act on Special Tax on Motor Vehicles (OG 15/13, 108/13, 115/16, 127/17, 121/19).

MTR-4: Monitoring, reporting and verification of greenhouse gas emissions in the lifetime of fuels and energy

In accordance with the Act on Climate Change and Ozone Layer Protection (OG 127/19) supplier that places the fuel on domestic market shall monitor greenhouse gas emissions per energy unit in the lifetime of the fuel. Suppliers have to draw up a report that has to be verified and submitted to the Ministry of Economy and Sustainable Development - the Institute for Environment and Nature.

The Croatian Government's Regulation on the quality of liquid petroleum fuels and the method of monitoring and reporting and methodology of calculation of greenhouse gas emissions in the lifetime of delivered fuels and energy (OG 57/17) regulates the limit values of components and/or quality characteristics of liquid petroleum fuels, method of determining and monitoring the quality of liquid

petroleum fuels, conditions for the operation of sampling laboratories and laboratory analysis of the quality of liquid petroleum fuels, the way of demonstrating compliance of the product, the name and marking of the product, way and deadlines for the submission of reports on the quality of liquid petroleum fuels and emissions reports of greenhouse gases in the lifetime of fuels and energy, method of monitoring and reporting, methodology for calculation of greenhouse gas emissions in lifetime of fuels and energy, methodology for calculating the contribution of electric road vehicles to reducing greenhouse gas emissions, the format of the report, the period of the storage and the manner of transmission of data to the European Union competent bodies.

MTR-5: Legislative adjustments for cleaner transport

Through amendments to laws and bylaws, ensure the development of infrastructure for alternative fuels, raising the share of renewable sources in direct energy consumption in transport and promoting clean and energy efficient vehicles in road transport.

MTR-6: Financial incentives for the purchase of energy efficient vehicles

In the context of co-financing cleaner transport projects, it is necessary to define special co-financing lines for specific purposes, namely, for the purchase of electric vehicles, compressed and liquefied natural gas and hydrogen. Incentives for co-financing the purchase of vehicles will be primarily oriented towards alternative fuels for which the assessment of the existing situation has shown a minor representation in the total number of vehicles and will be time-limited until the minimum representation of vehicles is achieved. The minimum degree of market development shall be considered to be 1% of alternative fuel vehicles in the total number of vehicles registered in the country.

MTR-7: Development of infrastructure for alternative fuels

The objective of this measure is to facilitate the uptake of alternative fuels by users/consumers by strengthening the alternative fuels distribution infrastructure and implementing common technical specifications for this infrastructure. This measure will not directly affect the reduction of fuel consumption in traffic, but the development of infrastructure is certainly a necessary prerequisite for the development of the market of vehicles and vessels that use electricity, compressed and liquefied natural gas and hydrogen in Croatia.

The incentive measures for infrastructure co-financing will be primarily oriented towards alternative fuels for which an assessment of the current situation has shown that the infrastructure is underdeveloped and will be limited in time until the situation monitoring shows minimal infrastructure coverage.

MTR-8: Promotion of integrated freight transport

The measure is regulated by the Act on Combined Transport of Goods (OG 120/16) and the Ordinance on Incentives in Combined Transport of Goods (OG 5/18), which stipulates incentives for combined transport of goods by rail, inland waters or sea, and incentives for combined transport of goods on road sections.

MTR-9: Promotion of sustainable intermodal transport at national level

The measure follows the general and specific objectives defined in the Transport Development Strategy of the Republic of Croatia for the period from 2017 to 2030 (OG 84/17) in the context of energy efficiency

of rail, road, maritime transport, inland waterway transport and urban, suburban and regional traffic. Development of rail and generally multimodal infrastructure fall behind in comparison to highway infrastructure in terms of quality and connectivity. Investments are planned to develop a sustainable, integrated trans-European climate-resilient transport network. In maritime and inland waterway transport, the possibilities of introducing appropriate mechanisms to ensure the transition to low-carbon solutions will be analysed, especially in terms of the application of alternative energy sources for navigation. In this context, an action plan for shipping will be defined, which will, among other things, define appropriate emission standards for the coming period. Also, in air transport, the Republic of Croatia will define a plan and develop detailed guidelines for achieving a significant reduction in greenhouse gas emissions.

MTR-10: Promotion of integrated and intelligent transport systems and development of alternative fuels infrastructure at local and regional level

It is necessary to promote sustainable development of urban transport systems through the optimization of logistics of transport of goods and intelligent management of public parking spaces (ICT technologies), introduction of integrated passenger transport, introduction of car-sharing schemes in cities, introduction of low-emission zones in cities, introduction of public city bicycles system and construction of the accompanying cycling infrastructure, intelligent traffic control (upgrade, adaptation and replacement of out of date signalling devices and equipment, installation of advanced traffic equipment and intelligent traffic lights equipped with the autonomous power supply system from renewable sources, constructing and equipping central operating centers for monitoring and management of intersections with installed traffic lights). At the local level, it is necessary to continuously prepare and implement Sustainable Mobility Plans in cities, as well as strategic plans that build on the existing planning practices, and take into account integration, participation and evaluation principles to meet the citizens' mobility needs now and in the future, and ensure better quality of life in cities and their surroundings. The activities will be accompanied by appropriate information and educational campaigns.

MTR-11: Training for drivers of road vehicles for eco-driving

The aim of the measure is to raise awareness of the benefits of energy efficient driving. Education on the eco-driving elements is carried out in short trainings among the drivers who received their driver's license prior to the entry into force of the Ordinance on Training of Driver's License Candidates (OG 132/17, 6/18, 102/20), which introduced an obligation for all driving schools and instructors to carry out training on the elements of eco-driving during the standard training of candidates. Special elements of the national campaign should be devoted to eco-driving education for drivers of passenger cars, buses, commercial and heavy-duty vehicles.

MTR-12: Promotion of boat transport using alternative fuels

In accordance with the "National Coastal Shipping Service Development Plan" and considering that the Republic of Croatia is a maritime land with developed longitudinal liner traffic, and in addition has navigable river routes and lakes, this measure would co-finance the projects of gradual transition of the existing obsolete fleet to alternative and/or hybrid solutions and new construction. Ships that use alternative fuels are generally more expensive than ships that use conventional fuels, so there is no expressed interest of shipowners to invest in such ships. Therefore, in the initial period it is necessary to financially support the conversion/construction of such ships to the extent that the purchase price is

equalized or puts such a shipowner in the same position as a shipowner that uses ships with conventional fuel.

MTR-13: Advanced biofuel market development plan

Increasing the share of RES in transport by 2030 through the development of the advanced fuels market and achieving the planned share of advanced fuels in direct energy consumption in transport through the criteria of the lowest cost and the largest multiplier. The implementation of the measure is based on amendments to relevant laws and bylaws based on the Directive on the Promotion of the Use of Energy from Renewable Sources, and in particular the establishment of conditions for monitoring the sustainability of biofuels and greenhouse gas savings.

4.4. Industrial processes and product use

The largest emission sources within this sector - production of cement, lime and other mineral products, production of ammonia and nitric acid and production of steel, together with large energy sources, are included in the EU ETS system. Climate and energy policy framework until 2030 extends free allocation, still based on comparisons with benchmarks for products, heat, district heating and fuel. For the industry, the price of emission units on the ETS market, i.e. signals related to long-term price predictability will be the main drive.

Process emissions from economic activities, which, according to the IPCC methodology, are included in the sector of industrial processes and product use, are estimated on the basis of detailed sectoral projections of cement and chemicals (ammonia and nitric acid) production and projected macroeconomic indicators of gross value added by other industries, annual growth rate of gross domestic product and population decline. The application of measures defined by strategic and planning sectoral documents of producers is included, which is conditioned by market requirements, laws and regulations and requirements for the application of best available techniques in production processes.

The projections also include assumptions on limiting and reducing the use of fluorinated greenhouse gases, in accordance with the provisions of Regulation (EU) 517/2014 and Directive 2006/40/EC and in accordance with the expert assessment based on the continuation of the downward trend in emissions of these pollutants.

The following measures are included in projections:

MIP-1: Reducing the share of clinker in cement production

Increasing the share of mineral additives in cement depending on the composition of the raw material, the availability of additives of appropriate composition on the market and the market requirements for certain types of cement.

MIP-2: Limiting fluorinated greenhouse gas emissions

Implementation of Regulation (EU) 517/2014 in the Republic of Croatia is regulated by the Law on the Implementation of Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006 (OG 61/17, 118/18), which is in force since 1 January 2019.

The measure defines activities and procedures for the prevention of fluorinated greenhouse gas emissions, conducting equipment leakage checks, use of equipment with leak detection systems, keeping records of equipment on which leakage checks need to be performed, collection of fluorinated greenhouse gases to ensure their recycling, reclamation or destruction, the development of a producer responsibility system for the collection of fluorinated greenhouse gases and their recycling, reclamation or destruction, and the implementation of training and certification programs.

MIP-3: Gradual reduction of the amount of fluorocarbons that can be placed on the market

The measure concerns the gradual limitation of the amount of fluorocarbons available on the EU market by 2030 to 21% of the total amount of fluorocarbons placed on the market during the reference period 2009 to 2012, as established by Regulation (EU) 517/2014.

Regulation (EU) 517/2014 introduces a quota system for placing fluorocarbons on the market. The calculation of the benchmarks and the allocation of quotas should be based on the reported quantities of fluorocarbons placed on the market during the reference period from 2009 to 2012. Quota for placing fluorocarbons on the market shall be allocated to each manufacturer and importer for each year, starting in 2015, on the basis of benchmarks, applying defined percentages to calculate the maximum amount of fluorocarbons to be placed on the market and the allocation mechanism.

MIP-4: Restrictions and prohibitions on placing certain products and equipment on the market

The measure concerns restrictions and prohibitions on the placing on the market of certain products and equipment containing fluorinated greenhouse gases, as laid down in Regulation (EU) 517/2014.

Fluorinated greenhouse gases with high greenhouse potential are limited for use in new refrigeration and air conditioning equipment, fire extinguishing systems, foam blowing agents and aerosols.

MIP-5: Reduction of fluorinated greenhouse gas emissions from mobile air conditioning systems

Directive 2006/40/EC of the European Parliament and of the Council of 17 May 2006 relating to emissions from air-conditioning systems in motor vehicles and amending Council Directive 70/156/EEC has been implemented in three phases. The last phase came into force on 1 January 2017 by limiting the possibility of retrofitting air conditioning equipment designed to contain fluorinated greenhouse gases with a global warming potential above 150 in motor vehicles and banning the charging of air conditioning equipment with these gases.

4.5. Waste

The amount of landfilled solid waste will be reduced to a minimum by preventing waste generation and using separate collection, recycling and recovery of waste. All landfills will be remediated, waste management centres will apply modern technologies that enable material recovery and chemical recycling of waste, thus obtaining various chemical compounds that can be used in industrial production (ethylene, ammonia, etc.) as well as various fuels (hydrogen, synthetic gas, liquid fuels). The new landfills will be arranged in such a way that their impact on the environment is negligible. Establishing a waste management system in accordance with the principles of the circular economy will contribute to resource efficiency with less negative impact on people and the environment.

The following measures are included in the projections:

MWM-1: Preventing the generation and reducing the amount of solid waste

It is the first in the order of priority in the waste management, pursuant to the Sustainable Waste Management Act (OG 94/13, 73/17, 14/19, 98/19). Waste generation prevention and reduction includes municipal solid waste, industrial waste and sludge from wastewater treatment plants.

Waste prevention is achieved through the process of reuse and the use of by-products and the repealing of waste status, which will directly affect the reduction of the total amount of waste. The implementation of waste prevention measures is defined by the Waste Prevention Plan and the Plan for the Prevention and Reduction of Food Waste in the Republic of Croatia 2019 - 2022 (OG 61/19). The most important measures in terms of waste prevention are the establishment of Centres for reuse and provision of the necessary equipment for home composting as well educational activities.

This measure is achieved by cleaner production, education, economic instruments and enforcement of regulations in waste management, and by investing in modern technologies that enable material recovery and chemical recycling of waste. According to the Act, quantitative targets and deadlines for reducing the total amount of waste disposed to non-compliant landfills were defined. Disposal of waste to non-compliant landfills in Croatia was prohibited after 31 December 2017.

According to Directive (EU) 2018/850 of the European Parliament and of the Council of 30 May 2018 amending Directive 1999/31/EC on the landfill of waste, Member States should take the necessary measures to ensure that by 2035 the amount of landfilled municipal waste landfilled will be reduced to 10% or less of the total amount of municipal waste generated (by weight). Croatia was given the possibility of a delay of five years to meet the target because it is among the Member States that are in 2013 landfilled more than 60% of its municipal waste. The five-year delay is included in the projections. Accordingly, this goal will have to be met by 2040. In this case, Croatia must take the necessary measures by 2025 to reduce the amount of landfilled municipal waste to 25% or less of the total amount of municipal waste generated (by weight).

MWM-2: Increasing the amount of separately collected and recycled solid waste

Beside the Sustainable Waste Management Act, the Waste Management Plan of the Republic of Croatia for the period 2017 – 2022 (OG 3/17) also defines the quantitative targets and deadlines for increasing the amount of separately collected and recycled waste.

Waste management objectives are prescribed to encourage the transition to a European circular economy with a high level of resource efficiency, in which the value of products, materials and resources is maintained for as long as possible, and waste generation is reduced to a minimum.

In order to contribute to the European circular economy, according to Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste, Croatia should take the necessary measures designed to achieve the following targets:

- at least 50% by weight of municipal waste and waste from other sources whose waste streams are similar to that of municipal waste, including at least paper, metal, plastic and glass, should be recovered by recycling and preparation for re-use;
- at least 70% by weight of non-hazardous construction waste, other than natural materials determined by the waste code 17 05 04 - soil and stones other than those mentioned in 17 05 03, should be recovered by recycling, preparation for re-use and other material recovery procedures, including backfilling, where waste is used as a substitute for other materials;

- by 2025, the preparing for re-use and the recycling of municipal waste should be increased to a minimum of 55% by weight;
- by 2030, the preparing for re-use and the recycling of municipal waste should be increased to a minimum of 60% by weight;
- by 2035, the preparing for re-use and the recycling of municipal waste should be increased to a minimum of 65% by weight.

Croatia was given the possibility of a delay of five years to meet the targets because it is among the Member States that are in 2013 prepared for re-use and recycled less than 20% of its municipal waste. The five-year delay is included in the projections. Accordingly, Croatia must take the necessary measures designed to achieve the following targets:

- by 2025, the preparing for re-use and the recycling of municipal waste should be increased to a minimum of 50% by weight;
- by 2030, the preparing for re-use and the recycling of municipal waste should be increased to a minimum of 55% by weight;
- by 2035, the preparing for re-use and the recycling of municipal waste should be increased to a minimum of 60% by weight.

MWM-3: Ensuring the system of treatment and use of landfill gas

The Ordinance on the Methods and Conditions for the Landfill of Waste, Categories and Operational Requirements for Waste Landfills (OG 114/15, 103/18, 56/19) and Ordinance on Waste Management (OG 81/20) regulate technical requirements for landfill operation, which reduce possible adverse effects of landfills on the environment. At landfills where landfill gas occurs it is necessary to secure a gas collection system, and that gas must be treated and used. If collected landfill gases cannot be used for energy production, they should be flared in the area of the landfill and the emission of methane into the atmosphere should be prevented.

Implementation of binding targets for reducing of waste disposal and waste recycling, described within MWM-1 and MWM-2 measures, affects the amount of generated landfill gas, which is included in the projections.

MWM-4: Reducing the amount of disposed biodegradable waste

The aim of this measure is to reduce the amount of biodegradable fraction of waste disposed at landfills, thus reducing methane emissions resulting from anaerobic decomposition of waste.

Pursuant to the Sustainable Waste Management Act, quantitative targets that relate to the reduction of biodegradable municipal waste disposed to landfills were established. Thus, by the end of 2020, the share of biodegradable municipal waste disposed of in landfills had to be reduced to 35% weight of biodegradable municipal waste generated in 1997, that is 264,661 tons of waste was allowed to dispose. To prevent the disposal of biowaste at landfills and contribute to the achievement of other goals of waste management, it is necessary to encourage citizens to compost. The goal is to achieve that households separate biowaste from other municipal waste by disposing of it in biowaste containers. This measure will cover rural areas, i.e. suburbs of urban areas with a larger number of independent housing units with infield. In the territory of the Republic of Croatia, by implementing this measure, it is possible to reduce up to 90,000 tons of biowaste per year.

Since a significant part of biowaste is food waste, it is necessary to continue interdepartmental activities to prevent and reduce the generation of food waste.

Implementation of binding targets for reducing of waste disposal and waste recycling, described within MWM-1 and MWM-2 measures, affects reducing the amount of disposed biodegradable waste, which is included in the projections.

MWM-5: Use of biogas for biomethane production and electricity and heat generation

The measure is associated with measures for promoting the use of renewable energy sources for electricity and heat generation and obligation to use renewable energy sources in transport and refers to the mandatory use of biowaste as a substrate in biogas plants that produce biogas to be used for the biomethane production and electricity and heat generation.

The potential for reducing CH_4 emission (produced by anaerobic decomposition of biodegradable fraction of waste) is included in the MWM-4 measure. The potential for reducing CO_2 emission, which can be achieved by applying this measure, is calculated in the Energy sector.

4.6. Agriculture

The positive impact of the implementation of measures on overall greenhouse gas emissions in the agriculture sector is reflected in the direct reduction of methane and nitrogen compounds emissions.

Measures included in the formation of scenarios of gradual transition of agriculture in relation to the referent scenario:

MAG-1: Change in livestock diet of and feed quality

Specific sub-measures within this group of measures related to the regulation of digestive processes of livestock and their nutrition: changing the ratio of certain types of feed in the diet, the use of supplements, improving the quality of forage and improving grazing systems. These measures are largely related to the potential reduction of methane emissions from intestinal fermentation.

MAG-2: Improvement of livestock facilities and manure management systems

By improving and changing existing manure management systems and using the best available techniques, it is possible to reduce emissions.

MAG-3: Modification of the livestock system

Measures that achieve effects on reducing greenhouse gas emissions refer to measures that increase the intensity of production per animal and per unit time.

MAG-4: Anaerobic decomposition of manure and biogas production

The introduction of biogas plants reduces methane emissions due to the use of litter as a renewable source for electricity production. The measure is linked to the measures in Renewable sources in the production of electricity and heat and Construction of cogeneration plants from the Energy sector. Anaerobic breakdown help biogas plants to reduce the source of easily degradable carbon in the manure

that is applied to agricultural land, but it also potentially reduces the process of nitrification and N_2O emissions.

MAG-5: Improving the breeding and selection program, animal health and welfare

The aim of the measure is to determine both phenotypic and genetic variations in predicted CH_4 emissions, to determine the potential of genetics to reduce CH_4 emissions in dairy cows, and to increase production intensity.

MAG-6: Improvement and change of tillage system (reduced tillage)

Reduced tillage is the result of scientific research and practical audits that result in changing the conventional tillage system by reducing tillage depth, omitting one or more operations, reducing the frequency or complete omission of tillage, reducing the cultivated area and retaining crop residues. The direct impact on greenhouse gas emissions is primarily related to the significant impact on the organic carbon content in the soil and the smaller number of operating hours of machines.

MAG-7: Expansion of crop rotation with higher share of legumes

Sowing leguminous crops binds atmospheric nitrogen, reduces the risk of groundwater pollution, the soil is enriched with organic matter, which has multiple positive effects on improving and maintaining favorable physical, chemical and biological properties of the soil.

MAG-8: Intensification of crop rotation using intermediate crops

By sowing intermediate crops that can be used for livestock feeding or plowing for green manure, the remaining nutrients will be used, prevent further evaporation of water from the soil, reduce carbon loss from the soil, prevent nitrogen leaching into groundwater and increase organic matter in the soil.

MAG-9: Improving methods of applying mineral fertilizers

Reducing the consumption of mineral fertilizers is an indirect benefit from other measures that reduce the need for their application, but with proper fertilization practice. In addition, the application of slow-release fertilizers can directly affect the total amount of mineral fertilizers applied.

MAG-10: Improving methods of applying organic fertilizers

Organic fertilizers originate from organic sources such as solid manure or slurry and plant or animal residues, and strongly stimulate the activity of soil microbes compared to mineral fertilizers. Using injectors for direct injection into the soil reduces nitrogen loss due to volatilization.

MAG-11: Agroforestry

Agroforestry is a common name for land management systems in which permanent woody species are integrated with the cultivation of crops and/or animals on the same surface unit. Some agroforestry systems (e.g. Agro-silvopastoral system) are significant carbon removals. It is necessary to establish experimentally the applicability of agroforestry in our conditions with regard to different forms and divisions, but also to different needs.

MAG-12: Hydromeliorative interventions and disaster protection systems

The construction of drainage, irrigation and protection systems against floods, droughts and other natural disasters can indirectly reduce nutrient losses due to seepage and leaching, resulting in a reduced need for nitrogen application. In addition to the controlled application of mineral fertilizers, controlled drainage, reuse of drained water and the use of water of appropriate quality are important for reducing nitrate emissions. Drainage has the function of draining excess water. Also, the change in soil-air ratios affects the activity of beneficial microorganisms.

MAG-13: Introduction of new cultivars, varieties and cultures

Encouraging development, education and implementation of technologies at a national and regional level, encouraging the transition and adaptation of the entire production chain to produce new crops or enabling and encouraging the implementation of cultivars and varieties that are more resistant to drought and disease and have a lower overall carbon footprint. Aimed at reducing the need for mineral nitrogen in new cultivars that have increased resistance and less need for nutrients, as well as in specific legumes that have the ability to symbiotic relationship with nodule bacteria.

MAG -14: Change in people's diet

Growing cereals for animal feed produces much more greenhouse gases than producing cereals for human consumption. By reducing the consumption of meat (especially red) in the diet in favor of foods of plant origin, significant reductions in emissions can be achieved, as well as water savings.

MAG -15: Collection and processing of agricultural plantations and residues for energy purposes

Energy utilization of post-harvest residues (with emphasis on field crops) is one of the most important ways of producing energy from biomass in the Republic of Croatia. Other possible sources are the remnants of the winter harvest of almost all horticultural species, as well as fast-growing crops for energy production that are planted/sown exclusively for the production of biomass with the aim of its conversion into energy. The establishment of collection and logistics centers for biomass with the use of existing infrastructure (utilities, competence centers, business zones) will reduce the unit cost of production of biomass products and capitalize on innovation capacity and necessary equipment for innovative biomass products for the bioeconomy. Collection and logistics centers will act as a link between the farmer who owns biomass, processing biomass into new products with higher added value, developing new products and placing these new products on the market. The locations of the Centers will be defined with long-term development policies, in order to minimize their carbon footprint.

4.7. LULUCF

MLF-1: Development of the Land Management Strategy of the Republic of Croatia

The calculation of emissions/removals in the LULUCF sector, and sectoral projects (implementation activities) should form the basis for planning the use and management of LULUCF land categories for each of the repositories. The development of a Land Management Strategy is implied in order to properly define further (sub) measures that will be implemented on a particular category of land and which will reduce emissions and increase the removal of greenhouse gases in the Republic of Croatia.

Proposed future measures should form an integral part of this strategy. The measure aims to increase carbon sequestration in the LULUCF sector, reduce greenhouse gas emissions, and align EU targets for increasing the share of energy from renewable sources with emission reduction requirements.

MLF-2: Carbon accumulation on the surfaces of existing forests

The measure will contribute to maintaining/increasing removals in the forestry sector and meet the provisions of Decision 529/2013/EU and Regulation 841/2018/EU. Implementation of activities that contribute to increasing the carbon stock content in forests, especially in biomass storage, and the implementation of which ensures removals in a certain period higher than those defined by the Forest Reference Level (FRL). These activities are, for example, the analysis of the current management method and suggestions for improvement, reforestation, transfer of stands to a higher form of cultivation, selection of species for filling, etc. Maintaining removals higher than those defined by the FRL also ensures an increase in emission allowances that can be transferred to sectors outside the ETS.

MLF-3: Implementation of afforestation works

Changes in the sinks of greenhouse gases as a result of direct land use change caused by human activities and forestry activities, limited since 1990 to afforestation, reforestation and clearing, are allowed to be calculated in the national balance of emissions and sinks of greenhouse gases and used to fulfil obligations under the Kyoto Protocol. The aforementioned is stipulated by Article 3 paragraph 3 of Kyoto Protocol for parties included by Annex I to the Kyoto Protocol. EU policy continues the practice of calculating deforestation established by the Kyoto Protocol.

By analysing the costs and benefits of afforestation on the new areas, possibility of increasing greenhouse gas sinks using reforestation activities on the barren productive forest floor will be investigated. This would justify introduction of possible incentive measures, such as the afforestation of fast-growing species and natural regeneration of forests, equivalent to measures for greenhouse gas emissions reduction. Afforestation on non-forest areas (in terms of IPCC methodology) is an activity that generates removals. Due to the regulations in the field of nature protection which regulate the establishment of Natura 2000 areas, the Republic of Croatia is not able to dispose of all grassland areas (according to the national regulation: non-overgrown productive forest land) for afforestation purposes. Given that in the Republic of Croatia there are agricultural areas where no production takes place and which have been neglected for many years, when drafting the Land Management Strategy, the problem of these areas must be adequately addressed.

MLF-4: Production and use of wood and wood products

It is necessary to encourage the use of wood in traditional and new products, and to take awareness of the importance of wood products as carbon storage, and their importance in terms of additionally avoided emissions when the use of these products avoids emissions from the production of for instance plastic products. Raising information on manufactured wood products leads to data harmonization, which enables the creating the basis for the adoption of strategic plans, promoting the use of wood products, educating about the importance of wood products and their impact on climate and environment.

MLF-5: Cropland management

Agricultural production should be performed in a way that contributes to emission factor reduction, which is in the interest of family farms, given that the CAP EC regulations increase the amount of incentives if the emission factor is lower due to the way of land management. Management practices for these areas that may have an impact on emissions and removals, for example in soil storage: tillage methods, lifetime of plantation/crop (rotation period) and plantation/crop type, fertilizer application, residue management, erosion control, irrigation system application etc. It is also necessary to promote land management activities in a way suitable for the climate and the environment.

MLF-6: Grassland management

In order to reduce greenhouse gas emissions by changing and increasing removal, it is necessary to analyse the management of grassland areas in the Republic of Croatia. Implementing pasture management activities in a way that contributes to reducing the emission factor is of interest to family farms, given that the CAP EC regulations increase the amount of incentives if the emission factor is lower due to the management of these areas. It is also necessary to promote land management activities in a way suitable for the climate and the environment.

MLF-7: Implementation of technical projects and scientific research in the LULUCF sector

An analysis of the effectiveness of the implemented measures for both the sector and the measures defined in the study to meet the obligations under Article 10 of Decision 529/2013/EU on reducing/maintaining emissions and increasing/maintaining greenhouse gas removal is needed to develop new guidelines and define measures in forestry and agriculture sector. When defining priorities, Regulation 841/2018/EU and Regulation 842/2018/EU should be taken into account. This measure includes the launch of professional and scientific research to improve the management of all LULUCF land categories in order to reduce emissions and increase removals.

4.8. Other (cross-cutting) policies and measures

MCC-1: Committee for cross-sectoral coordination of policies and measures for mitigation and adaptation to climate change

In accordance with the Act on Climate Change and Ozone Layer Protection (OG 127/19) the Commission for inter-sectoral coordination of policies and measures for mitigation and adaptation to climate change was established to monitor and evaluate the implementation and planning of policies and measures for climate change mitigation and adaptation. The Commission makes recommendations to the Government of the Republic of Croatia on overall policies and measures for climate change mitigation and adaptation and provides political support in the implementation of climate change mitigation and adaptation policies and measures. The Commission also proposes to the Government of the Republic of Croatia the adoption of acts of strategic planning and regulations related to policies and measures for climate change mitigation and adaptation, proposes objectives, measures and activities of public policies and monitors their effects and outcomes in implementation and provides proposals and support in promoting interdisciplinary and synergistic public policy goals, measures and activities. Members of the Commission, the tasks and the manner of work of the Commission shall be determined by the Government of the Republic of Croatia at the proposal of the Ministry responsible for environmental protection.

MCC-2: Supporting the founding of regional energy and climate agencies and capacity building

Regional energy agencies do not currently operate in the entire Republic of Croatia, and it is necessary to build the capacity of existing regional energy agencies in the field of climate change and their transformation into energy and climate agencies. The aim of this measure is to encourage the establishment and founding of regional energy agencies for the areas of the Republic of Croatia where they do not operate, and the transformation of existing energy agencies into energy and climate agencies.

MCC-3: Promotion of the use of innovative information and communication technologies (ICT) to reduce greenhouse gas emissions

Innovative information and communication technologies have an increasingly important role in reducing greenhouse gas emissions and increasing energy efficiency. Intensifying their use in public administration, services and manufacturing processes, will boost productivity and work efficiency and at the same time will reduce energy consumption and consequent greenhouse gas emissions. The measure is expected to intensify the use of innovative ICT and monitoring of actual energy savings and reductions of greenhouse gas emissions.

MCC-4: Emissions Trading System

ETS (Emissions Trading System) sector includes all activities listed in Annex I of the Regulation on trading with greenhouse gas emission allowances (OG 89/20) and for the reduction of greenhouse gas emissions from these activities plant operators involved in the trading system are responsible. Through the equal distribution of emission allowances, reduction commitments have been distributed to system participants from all Member States with the aim of contributing to emission reductions at EU level by at least 43% by 2030 compared to 2005 levels.

From 1 January 2013, the Republic of Croatia is fully integrated in the EU Emission Trading System (EU ETS). Operators in Croatia - the pursuant in the EU ETS have obtained Permits for greenhouse gas emissions and have established a regime for emissions monitoring and reporting to the competent authority. Greenhouse gases covered by EU ETS are: carbon dioxide (CO_2) for all activities and additionally for certain activities, nitrous oxide (N_2O) and perfluorocarbon (PFC).

For aircraft operators in the Republic of Croatia, emissions monitoring and reporting of CO_2 emissions started formally on July 1, 2013. However, due to certain specificities related to the responsibility for administering aviation flights prior to Croatia's accession to the European Union, aircraft operators were required to submit annual emissions reports from the aircraft starting from 2010.

MCC-5: The CO_2 emission tax for the non-ETS stationary sources

The Regulation on unit charges, corrective coefficients and detailed criteria and benchmarks for determining the charge for emissions of carbon dioxide into the environment (OG 73/07, 48/09, 2/18) stipulates the obligation to pay the CO_2 emission tax for all stationary sources emitting more than 450 tons of CO_2 per year. The obligated parties investing in energy efficiency, renewable energy and other measures to reduce CO_2 emissions and other GHG emissions pay a lower tax. The Environmental Protection and Energy Efficiency Fund is authorized to calculate and charge the tax. From 2013 onwards, the obligation to pay the CO_2 emission tax has applied only to non-ETS sources.

MCC-6: Covenant of Mayors for Climate and Energy in the Republic of Croatia

The signatories of the Covenant support a joint vision for 2050: accelerating decarbonisation of their territories, strengthening capacity to adapt to the inevitable impact of climate change and allowing citizens to access safe, sustainable and affordable energy. The signatory cities are committed to action that will support the reduction in greenhouse gases by 40% by 2030 and the adoption of a common approach to mitigating and adapting to climate change. In order to transfer their political engagement from theory to practical measures and projects, the signatories of the Agreement undertake to submit the Sustainable Energy and Climate Action Plan (SECAP). This initiative was accepted by 82 cities and municipalities in the Republic of Croatia, so that the Covenant of Mayors covers over 2 million inhabitants in the Republic of Croatia.

MCC-7: Charter for Buildings Decarbonisation by 2050

Charter on cooperation for the decarbonisation of buildings by 2050 is initiated by the Ministry of Physical Planning, Construction and State Assets, which supports the EU vision of decarbonisation of buildings by 2050. The charter was launched for better interdepartmental communication and cooperation between government and the real sector. The goal is to create a wide network of connected experts through workshops and open dialogue of partners who are ready for a joint dialogue and contribution to the decarbonisation of the building fund by 2050. Open dialogues of partners bring together representatives of state and local government, academia and the professional public, construction and energy sectors and related industries in thematic workshops organized by the Ministry of Construction and Physical Planning. The contents of the Charter relate to the achievement of energy and climate goals at national and EU level through the decarbonisation of the building stock, renovation of buildings and construction of nearly-zero energy buildings, aware of the importance of further reducing greenhouse gas emissions, increasing the share of renewable energy sources, improving energy security, and introducing innovations and smart technologies that enable buildings to support the overall decarbonisation of the economy. The signing of the charter encourages continuous cooperation in the development of the Long-Term Strategy for the Reconstruction of the National Building Fund and the transition to the standard of construction of near-zero energy buildings (nZEB). The signatories of the Charter provide support and promote the decarbonisation of buildings in their further activities, wherever possible.

MCC-8: Creation of Platform for Carbon Capture, Use and Storage

The carbon capture and storage technology for large emission sources is not yet commercially available. According to Directive 2009/31/EC on geological storage of carbon dioxide, i.e. Article 36 of Directive 2010/75/EU on industrial emissions, for power plants with a capacity of more than 300 MW that have received a building permit after the entry into force of Directive 2009/31/EC on geological storage of carbon dioxide, it is necessary to assess whether the following conditions are met: a) availability of a suitable storage location, b) technical and economic feasibility of transport facilities and c) technical and economic feasibility of upgrading the CO_2 capture and collection facility. If these conditions are met, the competent authority must provide adequate space at the installation site for equipment to capture and compress the extracted CO_2. Legislatively, this is covered by the Hydrocarbon Exploration and Exploitation Act (OG 52/18, 52/19), which enables the storage of CO_2 in the territory of the Republic of Croatia. This method needs to be further developed and the potentials and possibilities for this technology need to be considered at the state level. In accordance with the above, it is planned to prepare a study of storage capacity assessment, but also to prepare a National Feasibility Study with an action plan for preparatory activities for CCUS projects. This study will cover the phases of capture at

emission sources, transport, injection and storage of CO_2, and the connection of CO_2 transport systems with other EU countries.

MCC-9: Improving sustainability of urban areas

The development of new national Programmes for the development of green infrastructure in urban areas and the Programme for the development of circular management of space and buildings, which achieve environmental, economic and social benefits of sustainable development. The programme for the development of green infrastructure in urban areas elaborates goals and measures for the development of green infrastructure which, among other things, increase the energy efficiency of buildings, reduce CO_2 emissions and reduce temperatures in the areas of thermal islands in urban areas. The programme for the development of circular management of space and buildings elaborates goals and measures for circular management of space and buildings, which encourage, among other things, circular measures in planning new buildings, reusing abandoned and/or neglected and extending the durability of existing spaces and buildings, reducing construction waste and increasing the energy efficiency of buildings. The aim of this measure is to encourage cities and municipalities to base revitalization and development projects on new urban areas on the principles of sustainability.

MCC-10: Foundation of the Programme for calculation and reduction of carbon footprint of business entities

The aim of the measure is to establish a Programme for calculation and reduction of carbon footprint of business entities outside the ETS system, in order to reduce total greenhouse gas emissions for all activities for which the business entity is responsible or on which it is dependent. It is necessary to calculate direct emissions and removals of greenhouse gases at the location of the business entity, either due to fuel combustion in the thermal power plant, from the production process and/or from the company's vehicles, indirect emissions that occur outside from the location of the business entity, and are related to the supply and consumption of electricity, heat and cooling energy, but also other indirect emissions/removals related to the flows of people, materials, waste and final products. The calculation of the carbon footprint will enable business entities to get acquainted with the structure of greenhouse gas emissions, i.e. to identify activities that most significantly contribute to reducing emissions, which is a good basis for the development and implementation of the Action Plan for carbon footprint reduction. The implementation of the Action Plan would lead to the reduction of greenhouse gas emissions and the mitigation of climate change, i.e. easier realization of the obligations assumed by the Paris Agreement.

MCC-11: Foundation of the Platform for Circular Economy

It is necessary to develop a systematic approach in all value chains related to the Croatian economy related to the measures listed in the Action Plan for the Circular Economy, based on which the EC integrates the principles of the circular economy in plastic production and consumption, water management, food systems and special waste management streams. It is necessary to establish a cross-sectoral thematic working group that will identify stakeholders in the circular economy (focus on industry and suppliers of raw materials, energy and packaging) and draw up a national action plan for the transition to the circular economy by adapting the legislative framework. The inclusion of the representatives of the Republic of Croatia in the Stakeholder Platform for the European Circular Economy enables direct access to innovations and best practices as well as cooperation in them.

MCC-12: Foundation of the Platform for Bioeconomy

In the context of bioeconomy development, it is necessary to connect three key aspects: development of new technologies and processes; market development and competitiveness of sectors based on the principles of the circular economy and the political will for cooperation between policy and stakeholders. This should ensure the transformation of existing "traditional" stakeholders of the bioeconomy (farmers, family farms, food processing, forestry, wood processing, pharmaceutical, chemical industry...) into new, modern stakeholders in low-carbon economy and sustainable development while supporting the positive impact on ecosystems, climate and carbon cycle. An in-depth analysis of stakeholders (sectors) is necessary for the transition to a bioeconomy, and that their economic activity contributes to the achievement of development goals based on low levels of emissions of carbon dioxide and other greenhouse gases. In parallel, the adjustment of the involved economic entities is needed for the use of funds from the announced EU funds intended for the transition to the bioeconomy.

MCC-13: Foundation of the Platform for Hydrogen Technologies

The role of hydrogen in the energy and transport systems of the future is expected to be more significant, even more so as the targets for reducing greenhouse gas emissions will be more ambitious. Therefore, it is necessary to identify opportunities related to the use of hydrogen in a timely manner, consider its application in the next decade and explore the possibilities of financially stimulating the production and consumption of hydrogen. To this end, a hydrogen technology platform will be established to connect national stakeholders relevant to hydrogen technology research and application, monitor the development of hydrogen technologies at EU and international level, and serve as a link between national, EU and international levels.

MCC-14: Energy efficiency obligation system for suppliers

The system of energy efficiency obligations was established by the Energy Efficiency Act (OG 127/14, 116/18, 25/20), and its functioning is determined in more detail by the Ordinance on the System of Energy Efficiency Obligations (OG 41/19). The obligators of the system of energy efficiency obligations are energy suppliers. The goal is to achieve a reduction in energy consumption by end consumers.

MCC-15: Integrated information system for monitoring energy efficiency

The national system for monitoring, measurement and verification of savings (SMIV) is established on the basis of the Energy Efficiency Act (OG 127/14, 116/18, 25/20) and the Ordinance on the System for Monitoring, Measuring and Verifying Energy Savings (OG 33/20). This system is extremely important because it monitors energy savings and the resulting reduction in greenhouse gases and the system data are used for reporting. In the next period, it is necessary to maintain and improve the functionality of the system, connect it to other systems (EMIS), and inform and educate obligated parties about the correct data entry required to calculate and verify energy savings.

MCC-16: Green public procurement

A National Commission for Green Public Procurement has been established to monitor the implementation of green public procurement through a survey questionnaire and an electronic public procurement notice. This measure represents a continuation of the initiated measures and further greening of public procurement procedures. Green public procurement will favour innovative low-

carbon products and services, further encouraging their market entry, and the public sector will serve as a good example.

MCC-17: Determining the starting point, national goals, indicators for monitoring the achievement and establishing a system for monitoring the achievement of the set goals of research, innovation and competitiveness

Elaboration of goals and monitoring system and establishment of a system for monitoring achievements in the field of research and development, innovation and competitiveness related to the Energy Union; defining key technologies for low carbon transition.

MCC-18: Co-financing of industrial research and experimental development projects aligned with the National Development Strategy

The measure encourages research and development of products and services relevant to low-carbon development, by co-financing research projects within priority topics.

MCC-19: Supporting low carbon entrepreneurship development

The measure encourages the development of entrepreneurship in the field of low-carbon products and services, by co-financing entrepreneurial activities in this area.

MCC-20: Supporting knowledge and technology transfer from science to economy with focus on low carbon technologies

The measure encourages the development of established and functional technology transfer offices and science and technology parks with the aim of transferring knowledge and developing technologies that will contribute to the development of a low-carbon economy.

MCC-21: Supporting further work of excellence centers active in the field of natural, technical, biotechnical and biomedical sciences

The measure encourages the further work of established and centers of excellence, whose work was positively assessed in the periodic evaluation process with the aim of further development of the low-carbon economy.

MCC-22: Capacity building for stimulating research and innovation and increasing competitiveness in the low carbon economy

The capacities of the institutions involved in encouraging and monitoring research, innovation and competitiveness in the low-carbon economy will be built.

5. Overview of policies and measures by sectors

Overview tables of policies and measures in each sector contain the code and title of the policy or measure, objective of implementation, identification of greenhouse gas affected by the policy or measure, type of policy instrument, status of implementation and implementing body.

In accordance with the recommendation from Annex XXIV. of the Commission Implementing Regulation (EU) 2020/1208, the types of instrument may be: economic, fiscal, agreement, regulatory, information, research, planning and other instruments.

The status of implementation that can be assigned to a policy or measure is: implemented, adopted or planned. Status "implemented" is assigned if national legislation is in force, voluntary agreements have been established, financial resources have been allocated or human resources have been mobilized. Status "adopted" is assigned to policies and measures for which an official government decision has been made and there is a clear commitment to proceed with implementation. For those policies and measures that are still under discussion and have a realistic chance of being adopted and implemented, status "planned" is chosen.

ENERGY

Table 5-1: Overview of policies and measures in Energy sector

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body

MEN-1: Promoting nZEB construction and renovation standards	Increase in the number of nearly-zero energy buildings	CO_2, CH_4, N_2O	information	implemented	Ministry of Physical Planning, Construction and State Assets

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MEN-2: Energy renovation programme for apartment buildings	Renovation of 520,000 m^2 of apartment buildings per year	CO_2, CH_4, N_2O	economic	implemented	Ministry of Physical Planning, Construction and State Assets, Environmental Protection and Energy Efficiency Fund

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MEN-3: Energy renovation programme for single family houses	Renovation of 350,000 m^2 of family houses per year	CO_2, CH_4, N_2O	economic	implemented	Ministry of Physical Planning, Construction and State Assets, Environmental Protection and Energy Efficiency Fund

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MEN-4: Energy renovation programme for public buildings	Renovation of 350,000 m^2 of public buildings per year	CO_2, CH_4, N_2O	economic	implemented	Ministry of Physical Planning, Construction and State Assets, Environmental Protection and Energy Efficiency Fund, Agency for Legal Affairs and Real Estate
MEN-5: Energy renovation program for buildings that have the status of cultural property	Renovation of 8.975.943 m^2 of buildings that have the status of cultural property	CO_2, CH_4, N_2O	economic	planned	Ministry of Physical Planning, Construction and State Assets, Environmental Protection and Energy Efficiency Fund

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MEN-6: Energy renovation program for public lighting	Energy savings of 225 - 280 GWh	CO_2, CH_4, N_2O	economic	implemented	Ministry of Economy and Sustainable Development, National Coordinating Body for Energy Efficiency, Environmental Protection and Energy Efficiency Fund and EU funds
MEN-7: Energy management in the public sector	Improving energy efficiency in the public sector	CO_2, CH_4, N_2O	information, regulatory	implemented	Agency for Legal Affairs and Real Estate, Ministry of Physical Planning, Construction and State Assets
MEN-8: Energy management in the business (service and production) sector	Improving energy efficiency in commercial and service industries	CO_2, CH_4, N_2O	fiscal	planned	Ministry of Economy and Sustainable Development, Ministry of Finance
MEN-9: Informational accounts	Informing consumers about energy consumption and production	CO_2, CH_4, N_2O	regulatory, information	implemented	Ministry of Economy and Sustainable Development, Energy Suppliers
MEN-10: Energy efficiency information	Informing the general public and target groups about energy efficiency promotion programs	CO_2, CH_4, N_2O	information	implemented	Ministry of Economy and Sustainable Development, Ministry of Physical Planning, Construction and State Assets
MEN-11: Energy efficiency education	Educating workers on energy efficiency	CO_2, CH_4, N_2O	education	implemented	Croatian Employment Service, Agency for Vocational Education and Adult Education
MEN-12: Energy efficiency of the electricity transmission network	Reduction of losses in the transmission network, Primary energy savings	CO_2, CH_4, N_2O	regulatory, economic	implemented	Ministry of Economy and Sustainable Development, Croatian Transmission System Operator

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MEN-13: Reduction of losses in the distribution network and introduction of smart grids	Reduction of technical and non-technical losses in the electricity distribution network, Primary energy savings	CO_2, CH_4, N_2O	regulatory, economic	implemented	Ministry of Economy and Sustainable Development, HEP DSO (Distribution System Operator)
MEN-14: Increasing the efficiency of the district heating systems	Primary energy savings	CO_2, CH_4, N_2O	regulatory, economic	implemented	Ministry of Economy and Sustainable Development, HEP District Heating
MEN-15: Increasing the efficiency of the gas transport network	Improving the energy efficiency of the gas transmission system, Primary energy savings	CO_2, CH_4, N_2O	regulatory, economic	implemented	Ministry of Economy and Sustainable Development, Plinacro ltd.
MEN-16: Information, education and capacity building for RES use	Promoting the use of renewable energy sources	CO_2, CH_4, N_2O	information	planned	Ministry of Economy and Sustainable Development, Ministry of Physical Planning, Construction and State Assets, Environmental Protection and Energy Efficiency Fund
MEN-17: Spatial planning prerequisites for RES use	Promoting the use of renewable energy sources, Increasing the installed capacity of RES with sustainable use of space and natural resources	CO_2, CH_4, N_2O	regulatory	planned	Ministry of Economy and Sustainable Development, Ministry of Physical Planning, Construction and State Assets
MEN-18: Promoting the RES use for production of electricity and heat	Increasing the share of renewable energy sources in electricity and heat production	CO_2, CH_4, N_2O	economic	implemented	Ministry of Economy and Sustainable Development, Croatian Energy Operator (HROTE), Environmental Protection and Energy Efficiency Fund

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MEN-19: Development of the regulatory framework for RES use	Promoting the use of renewable energy sources, Increase in energy production and a share of RES in total energy consumption	CO_2, CH_4, N_2O	regulatory	planned	Ministry of Economy and Sustainable Development, Croatian Energy Regulatory Agency (HROTE), Ministry of Physical Planning, Construction and State Assets
MEN-20: Integrated planning of security of energy and energy products supply	Increasing energy security including alternative fuels	CO_2, CH_4, N_2O	economic, regulatory	planned	Ministry of Economy and Sustainable Development
MEN-21: Construction and use of energy storage	Promoting the use of renewable energy sources, Saving primary energy	CO_2, CH_4, N_2O	economic	planned	Ministry of Economy and Sustainable Development
MEN-22: Development and maintenance of centralised thermal systems	Increasing energy efficiency, Primary energy savings	CO_2, CH_4, N_2O	economic	planned	Ministry of Economy and Sustainable Development
MEN-23: LNG terminal construction	Primary energy savings	CO_2, CH_4, N_2O	economic	planned	Ministry of Economy and Sustainable Development, LNG Croatia LLC
MEN-24: Refinery modernization and transformation	Increasing energy efficiency, Reduction of fugitive emissions	CO_2, CH_4	economic, information, education	planned	Ministry of Economy and Sustainable Development, INA, d.d. (oil company)
MEN-25: Measures to increase energy efficiency by improving processes and process units	Increasing energy efficiency, Reduction of fugitive emissions	CO_2, CH_4	economic	planned	Ministry of Economy and Sustainable Development, distributors of liquid petroleum fuels, INA, d.d. (oil company)

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MEN-26: Methane flaring	Reduction of fugitive emissions	CH_4	economic	planned	Ministry of Economy and Sustainable Development, INA, d.d. (oil company)
MEN-27: Development of the electricity transmission network	Primary energy savings	CO_2, CH_4, N_2O	regulatory, economic	implemented	Ministry of Economy and Sustainable Development, Croatian Transmission System Operator
MEN-28: Development of gas transmission system	Primary energy savings	CO_2, CH_4, N_2O	regulatory, economic	implemented	Ministry of Economy and Sustainable Development, Plinacro ltd.
MEN-29: Elaboration of the regulatory framework for active participation of customers on the electricity market	Promoting the use of renewable energy sources, Primary energy savings	CO_2, CH_4, N_2O	regulatory	planned	Ministry of Economy and Sustainable Development, Croatian Energy Regulatory Agency (HERA)
MEN-30: Introduction of advanced consumption metering systems and data management	Primary energy savings	CO_2, CH_4, N_2O	economic, information	planned	Ministry of Economy and Sustainable Development
MEN-31: Adoption and implementation of the Programme for Energy Poverty Reduction	Reducing energy poverty	CO_2, CH_4, N_2O	economic, information	planned	Ministry of Economy and Sustainable Development, Ministry of Labour, Pension System, Family and Social Policy

TRANSPORT

Table 5-2: Overview of policies and measures in Transport sector

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MTR-1: Providing information to consumers on fuel economy and CO_2 emission of new passenger cars	Reducing CO_2 emissions from road vehicles, Energy saving	CO_2, CH_4, N_2O	information	implemented	Ministry of Economy and Sustainable Development, Ministry of the Interior
MTR-2: Special environmental fee for motor vehicles	Reducing CO_2 emissions from road vehicles, Energy saving	CO_2, CH_4, N_2O	fiscal, economic	implemented	Ministry of Economy and Sustainable Development, Ministry of Finance, Environmental Protection and Energy Efficiency Fund
MTR-3: Special tax on motor vehicles	Reducing CO_2 emissions from road vehicles, Energy saving	CO_2, CH_4, N_2O	fiscal, economic	implemented	Ministry of Economy and Sustainable Development, Ministry of Finance
MTR-4: Monitoring, reporting and verification of greenhouse gas emissions in the lifetime of fuels and energy	Reducing CO_2 emissions from road vehicles, Energy saving	CO_2, CH_4, N_2O	regulatory	implemented	Ministry of Economy and Sustainable Development
MTR-5: Legislative adjustments for cleaner transport	Increasing the share of RES in final energy consumption in transport, Increasing the share of clean vehicles in road transport	CO_2, CH_4, N_2O	regulatory	planned	Ministry of Economy and Sustainable Development, Ministry of the Sea, Transport and Infrastructure
MTR-6: Financial incentives for the purchase of energy efficient vehicles	Reducing CO_2 emissions from road vehicles, Energy saving	CO_2, CH_4, N_2O	economic	implemented	Ministry of Economy and Sustainable Development,

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
					Environmental Protection and Energy Efficiency Fund
MTR-7: Development of infrastructure for alternative fuels	Reducing CO_2 emissions from road vehicles, Accelerating the development of alternative energy-generating product markets	CO_2, CH_4, N_2O	regulatory, economic	implemented	Ministry of the Sea, Transport and Infrastructure, Ministry of Economy and Sustainable Development, Environmental Protection and Energy Efficiency Fund
MTR-8: Promotion of integrated freight transport	Reducing CO_2 emissions from road vehicles, Energy saving	CO_2, CH_4, N_2O	regulatory, economic	implemented	Ministry of the Sea, Transport and Infrastructure, Ministry of Economy and Sustainable Development
MTR-9: Promotion of sustainable intermodal transport at national level	Reducing CO_2 emissions from road vehicles, Energy saving	CO_2, CH_4, N_2O	regulatory, economic	implemented	Ministry of the Sea, Transport and Infrastructure, Ministry of Economy and Sustainable Development
MTR-10: Promotion of integrated and intelligent transport systems and development of alternative fuels infrastructure at local and regional level	Reducing CO_2 emissions from road vehicles, Energy saving	CO_2, CH_4, N_2O	economic, voluntary, information	implemented	Ministry of Economy and Sustainable Development, Units of regional and local self-government, Environmental Protection and Energy Efficiency Fund
MTR-11: Training for drivers of road vehicles for eco-driving	Reducing CO_2 emissions from road vehicles, Energy saving	CO_2, CH_4, N_2O	education	implemented	Ministry of the Interior, Ministry of Economy and Sustainable Development, Environmental Protection and Energy Efficiency Fund
MTR-12: Promotion of boat transport using alternative fuels	Accelerating the development of active users of alternative energy,	CO_2, CH_4, N_2O	economic, voluntary	implemented	Ministry of Economy and Sustainable Development,

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
	Reducing CO_2 emissions from road vehicles, Energy saving				Ministry of the Sea, Transport and Infrastructure, Environmental Protection and Energy Efficiency Fund
MTR-13: Advanced biofuel market development plan	Increasing the share of renewable energy sources in transport, Reducing CO_2 emissions from road vehicles	CO_2, CH_4, N_2O	regulatory, economic	planned	Ministry of Economy and Sustainable Development, Ministry of Agriculture, Ministry of Finance

INDUSTRIAL PROCESSES AND PRODUCT USE

Table 5-3: Overview of policies and measures in Industrial processes and product use sector

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MIP-1: Reducing the share of clinker in cement production	Reducing CO_2 emissions	CO_2	economic	planned	Cement manufacturers
MIP-2: Limiting fluorinated greenhouse gas emissions	Reducing greenhouse gases emissions	SF_6, HFC, PFC	regulatory, educational	implemented	Ministry of Economy and Sustainable Development
MIP-3: Gradual reduction of the amount of fluorocarbons that can be placed on the market	Reducing greenhouse gases emissions	SF_6, HFC, PFC	regulatory	implemented	Ministry of Economy and Sustainable Development
MIP-4: Restrictions and prohibitions on placing certain products and equipment on the market	Reducing greenhouse gases emissions	SF_6, HFC, PFC	regulatory	implemented	Ministry of Economy and Sustainable Development
MIP-5: Reduction of fluorinated greenhouse gas emissions from mobile air conditioning systems	Reducing greenhouse gases emissions	SF_6, HFC, PFC	regulatory	implemented	Ministry of Economy and Sustainable Development

WASTE

Table 5-4: Overview of policies and measures in Waste sector

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MWM-1: Preventing the generation and reducing the amount of solid waste	Reduce the amount of waste for disposal	CH_4	regulatory, economic, educational	implemented	Ministry of Economy and Sustainable Development, regional and local self-government units
MWM-2: Increasing the amount of separately collected and recycled solid waste	Reuse and recycling of waste, reduce the amount of waste for disposal	CH_4	regulatory, economic	implemented	Ministry of Economy and Sustainable Development, regional and local self-government units
MWM-3: Ensuring the system of treatment and use of landfill gas	Reduce methane emissions in the atmosphere	CH_4	regulatory, economic	implemented	Ministry of Economy and Sustainable Development, regional and local self-government units
MWM-4: Reducing the amount of disposed biodegradable waste	Reduce methane emissions in the atmosphere	CH_4	regulatory	implemented	Ministry of Economy and Sustainable Development, regional and local self-government units
MWM-5: Use of biogas for biomethane production and electricity and heat generation	Reduce methane emissions in the atmosphere, use of renewable energy sources in transport, primary energy savings in energy generation	CO_2, CH_4	regulatory, economic	implemented	Ministry of Economy and Sustainable Development, regional and local self-government units

AGRICULTURE

Table 5-5: Overview of policies and measures in Agriculture sector

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MAG-1: Change in livestock diet of and feed quality	Reduction of methane emissions from intestinal fermentation, improvement of emission reporting systems	CH_4	economic, educational	implemented	Ministry of Agriculture, advisory services, Ministry of Economy and Sustainable Development
MAG-2: Improvement of livestock facilities and manure management systems	Reduction of methane, nitrogen and ammonia emissions through improvements in animal nutrition and manure collection and storage systems	CH_4, N_2O	economic, educational	implemented	Ministry of Agriculture, advisory services
MAG-3: Modification of the livestock system	Indirect reduction of methane and nitrous oxide emissions by increasing the share of cattle in the "cow-calf" system	CH_4, N_2O	economic, planning	implemented	Ministry of Agriculture, advisory services
MAG-4: Anaerobic decomposition of manure and biogas production	Reduction of methane emissions from manure management systems for cattle and pigs by increasing the share of biogas plants	CH_4	economic	implemented	Ministry of Agriculture, advisory services
MAG-5: Improving the breeding and selection program, animal health and welfare	Indirect reduction of methane and nitrous oxide emissions through breed improvements and improvement of genetic potential	CH_4, N_2O	economic, research, educational	planned	Ministry of Agriculture, advisory services
MAG-6: Improvement and change of tillage system (reduced tillage)	Increasing soil carbon sequestration through	CO_2	research, planning	planned	Ministry of Agriculture, advisory services,

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
	improvements and modifications to tillage systems				Ministry of Economy and Sustainable Development
MAG-7: Expansion of crop rotation with higher share of legumes	Defining the potential for change in organic matter content / increasing soil sequestration of carbon	N_2O	economic, educational	planned	Ministry of Agriculture, advisory services
MAG-8: Intensification of crop rotation using intermediate crops	Increasing soil carbon sequestration and reducing nitrate seepage	CO_2	economic, educational	implemented	Ministry of Agriculture, advisory services
MAG-9: Improving methods of applying mineral fertilizers	Reduction of nitrous oxide emissions from agricultural soils, increase of production, reduction of application of mineral fertilizers	N_2O	economic, educational	implemented	Ministry of Agriculture, advisory services
MAG-10: Improving methods of applying organic fertilizers	Reducing emissions by improving the application methodology	N_2O	economic, educational, planning	implemented	Ministry of Agriculture, advisory services
MAG-11: Agroforestry	Defining the potential and benefits of various agroforestry technologies with the aim of increasing soil sequestration	CO_2	research	planned	Ministry of Economy and Sustainable Development, Ministry of Agriculture
MAG-12: Hydromeliorative interventions and disaster protection systems	Increasing the share of agricultural soils under irrigation, reducing the leakage of nitrates from agricultural soils	N_2O	economic	implemented	Ministry of Agriculture, advisory services
MAG-13: Introduction of new cultivars, varieties and cultures	Determining the potential of new cultivars, varieties and crops to increase soil carbon sequestration	CO_2	research, planning	planned	Ministry of Economy and Sustainable Development, Ministry of Agriculture

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MAG -14: Change in people's diet	Data collection and research on the potential for reducing greenhouse gas emissions due to changes in diet, Developing a framework for reducing the carbon signature	CO_2	research, educational	planned	Ministry of Economy and Sustainable Development, Ministry of Agriculture
MAG -15: Collection and processing of agricultural plantations and residues for energy purposes	Optimization of the collection of pruned biomass of permanent crops and field biomass, production of safely available biomass, activation of poorer quality soils in the Republic of Croatia, provision of low-carbon energy during the production process of heat and/or electricity	CO_2	regulatory, economic	planned	Ministry of Economy and Sustainable Development, Ministry of Agriculture

LULUCF

Table 5-6: Overview of policies and measures in LULUCF sector

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MLF-1: Development of the Land Management Strategy of the Republic of Croatia	Increase removal and reduction of greenhouse gas emissions from the LULUCF sector, Align the EU's targets for increasing the share of energy from renewable sources with emission reduction requirements	CO_2	economic, information, regulatory	adopted	Ministry of Economy and Sustainable Development, Ministry of Agriculture
MLF-2: Carbon accumulation on the surfaces of existing forests	Examination of the justification of measures, Ensuring the maintenance of a defined, reference level for forests	CO_2	economic, regulatory	adopted	Ministry of Economy and Sustainable Development, Ministry of Agriculture
MLF-3: Implementation of afforestation works	Examining the justification of measures to sinks increase	CO_2	economic, regulatory	adopted	Ministry of Economy and Sustainable Development, Ministry of Agriculture
MLF-4: Production and use of wood and wood products	Increasing the removal of carbon dioxide in Harvested Wood Products (HWP), Increasing the quality and harmonization of information on wood products	CO_2	economic	adopted	Ministry of Economy and Sustainable Development, Ministry of Agriculture
MLF-5: Cropland management	Reducing greenhouse gas emissions by changing and improving the way cropland is managed	CO_2	economic, regulatory	adopted	Ministry of Economy and Sustainable Development, Ministry of Agriculture

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MLF-6: Grassland management	Reducing greenhouse gas emissions by changing and improving the way grassland is managed	CO_2	economic, regulatory	adopted	Ministry of Economy and Sustainable Development, Ministry of Agriculture
MLF-7: Implementation of technical projects and scientific research in the LULUCF sector	Research in the LULUCF sector	CO_2, N_2O, CH_4,	regulatory, research, information	adopted	Ministry of Economy and Sustainable Development, Ministry of Agriculture, Ministry of Science and Education

CROSS-CUTTING POLICIES AND MEASURES

Table 5-7: Overview of cross-cutting policies and measures

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MCC-1: Committee for cross-sectoral coordination of policies and measures for mitigation and adaptation to climate change	Monitoring the implementation of policies and measures for mitigation and adaptation to climate change	CO_2, CH_4, N_2O	regulatory	implemented	Ministry of Economy and Sustainable Development
MCC-2: Supporting the founding of regional energy and climate agencies and capacity building	Establishment of energy and climate agencies and transformation of existing regional energy agencies into regional energy and climate agencies	CO_2, CH_4, N_2O	regulatory, economic	planned	Ministry of Economy and Sustainable Development
MCC-3: Promotion of the use of innovative information and communication technologies (ICT) to reduce greenhouse gas emissions	Increasing productivity and work efficiency while reducing energy consumption and consequent greenhouse gas emissions, Improving monitoring of GHG emissions	CO_2, CH_4, N_2O	information, voluntary	implemented	Ministry of Economy and Sustainable Development, Ministry of Physical Planning, Construction and State Assets
MCC-4: Emissions Trading System	Reduction of the GHG emissions by operators under EU ETS	CO_2, N_2O	regulatory, economic	implemented	Ministry of Economy and Sustainable Development
MCC-5: The CO_2 emission tax for the non-ETS stationary sources	GHG emissions reduction from non-EU ETS stationary sources	CO_2, CH_4, N_2O	regulatory, fiscal	implemented	Ministry of Economy and Sustainable Development, Environmental Protection and Energy Efficiency Fund
MCC-6: Covenant of Mayors for Climate and Energy in the Republic of Croatia	Accelerating decarbonisation of cities and municipalities	CO_2, CH_4, N_2O	voluntary	implemented	Local government: cities and municipalities

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MCC-7: Charter for Buildings Decarbonisation by 2050	Decarbonisation of the building stock by 2050	CO_2	voluntary	planned	Ministry of Physical Planning, Construction and State Assets
MCC-8: Creation of Platform for Carbon Capture, Use and Storage	preparation of bases for CCUS projects in the Republic of Croatia	CO_2	research, economic	planned	Ministry of Economy and Sustainable Development
MCC-9: Improving sustainability of urban areas	Accelerating decarbonisation of cities and municipalities	CO_2, CH_4, N_2O	research, voluntary, economic	planned	Ministry of Physical Planning, Construction and State Assets
MCC-10: Foundation of the Program for calculation and reduction of carbon footprint of business entities	Reduction of GHG emissions, Reducing the carbon footprint of businesses	CO_2, CH_4, N_2O	regulatory	planned	Ministry of Economy and Sustainable Development, Environmental Protection and Energy Efficiency Fund
MCC-11: Foundation of the Platform for Circular Economy	Developed action plan for the transition to a circular economy	CO_2, CH_4, N_2O	information, educational, regulatory	planned	Ministry of Economy and Sustainable Development, Environmental Protection and Energy Efficiency Fund
MCC-12: Foundation of the Platform for Bioeconomy	Adaptation of the agriculture, forestry and waste management sectors to the transition to the bioeconomy	CO_2, CH_4, N_2O	information, educational, regulatory	planned	Ministry of Economy and Sustainable Development, Ministry of Agriculture
MCC-13: Foundation of the Platform for Hydrogen Technologies	Formed platform for hydrogen technology that will bring together national stakeholders relevant to the research and application of hydrogen technology	CO_2, CH_4, N_2O	information, educational, regulatory	planned	Ministry of Economy and Sustainable Development, Environmental Protection and Energy Efficiency Fund
MCC-14: Energy efficiency obligation system for suppliers	Energy savings in indirect consumption	CO_2	regulatory, economic	implemented	Ministry of Economy and Sustainable Development

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
MCC-15: Integrated information system for monitoring energy efficiency	Systematic monitoring of the implementation of energy efficiency measures	CO_2, CH_4, N_2O	information	implemented	Ministry of Economy and Sustainable Development
MCC-16: Green public procurement	Environmental criteria implemented in public procurement procedures	CO_2, CH_4, N_2O	regulatory, information	implemented	Ministry of Economy and Sustainable Development, Central State Office for Central Public Procurement
MCC-17: Determining the starting point, national goals, indicators for monitoring the achievement and establishing a system for monitoring the achievement of the set goals of research, innovation and competitiveness	Defined national development goals in the context of low-carbon transition	CO_2, CH_4, N_2O	regulatory	planned	Ministry of Economy and Sustainable Development, Ministry of Science and Education
MCC-18: Co-financing of industrial research and experimental development projects aligned with the National Development Strategy	Conducted scientific research projects	CO_2, CH_4, N_2O	economic	planned	Croatian Science Foundation, Ministry of Science and Education, HAMAG-BICRO, Ministry of Economy and Sustainable Development
MCC-19: Supporting low carbon entrepreneurship development	Low-carbon products and services placed on the market	CO_2, CH_4, N_2O	economic	planned	Ministry of Science and Education, HAMAG-BICRO, Ministry of Economy and Sustainable Development
MCC-20: Supporting knowledge and technology transfer from science to	Established technology transfer offices	CO_2, CH_4, N_2O	economic	planned	Ministry of Science and Education

Name of PAM	Objective	Greenhouse gas	Type of instrument	Status	Implementing body
economy with focus on low carbon technologies					
MCC-21: Supporting further work of excellence centers active in the field of natural, technical, biotechnical and biomedical sciences	Conducted industrial and experimental research in the field of low carbon development	CO_2, CH_4, N_2O	economic	planned	Ministry of Science and Education
MCC-22: Capacity building for stimulating research and innovation and increasing competitiveness in the low carbon economy	Support for projects in the field of research, innovation and increasing competitiveness	CO_2, CH_4, N_2O	information	planned	HAMAG-BICRO, Ministry of Science and Education, Ministry of Economy and Sustainable Development

6. Projections indicators for monitoring and assessing progress in policies and measures implementation

Table 6-1: Projections indicators for monitoring and assessing progress in policies and measures implementation, 'with existing measures' scenario

No.	Sector by Eurostat	Indicator	2020	2025	2030	2035	2040
1	MACRO	GDP [bill. EUR] (EC15)	46.24675	51.5627	57.48971	62.83544	68.71759
2	MACRO B0	CO_2 intensity from energy consumption of GDP [t/mil. EUR]	325.0202	283.2964	245.7542	205.3547	167.0832
		CO_2 emissions from energy consumption [kt CO_2]	15031.13	14607.53	14128.34	12903.55	11481.55
		GDP [bill. EUR] (EC15)	46.24675	51.5627	57.48971	62.83544	68.71759
3	TRANSPORT C0	CO_2 intensity of passenger cars [g CO_2/km]	181.4198	169.6926	157.189	132.8334	109.3704
		CO_2 emissions from passenger cars [kt]	4145.66	4145.151	4161.632	3708.21	3194.274
		Number of kilometres from passenger cars [Mkm]	22851.19	24427.42	26475.34	27916.24	29206.01
4	INDUSTRY A1	Energy related CO_2 intensity of industry [t/mil. EUR]	403.893	362.7586	325.9366	288.1049	256.9603
		CO_2 emissions from industry which use fossil fuels [kt]	2372,199	2375,511	2379,726	2281,003	2189,554
		Gross value-added total industry [bill. EUR] (EC15)	5.873337	6.548463	7.301194	7.917265	8.520981
5	HOUSEHOLDS A1	Specific CO_2 emissions of households [kg/m^2]	11.64173	11.91251	11.99109	11.86898	11.57104
		CO_2 from households using fossil fuels [kt]	1456.659	1499.582	1549.153	1563.987	1553.829
		Area of permanently inhabited residential areas [Mm^2]	1472.05	1480.97	1519.91	1550.25	1579.84
6	SERVICES A0	CO_2 intensity of the commercial and institutional sector [t/mil. EUR]	23.02422	21.39162	19.8261	17.79994	15.73811
		CO_2 emissions from fossil fuel consumption in commercial and institutional sector [kt]	637.8124	673.9388	707.814	704.6343	687.8246
		Gross value-added services [bill. EUR] (EC10)	27.7018	31.50481	35.70111	39.58633	43.70439

No.	Sector by Eurostat	Indicator	2020	2025	2030	2035	2040
7	TRANSFORMATION B0	Specific CO_2 emissions from public thermal power plants and thermal power plants with production for own needs [t/TGJ]	110.74	92.22	75.25	65.41	56.03
		CO_2 emissions from public thermal power plants and thermal power plants with production for own needs [kt]	2781.54	2463.11	2133.41	1919.25	1704.11
		All output products from public thermal power plants and thermal power plants with production for own needs [PJ]	25.12	26.71	28.35	29.34	30.42
8	AGRICULTURE	CH_4 emissions from dairy cows [kt CH_4/year]	26.19	25.08	23.22	22.86	21.31
		CH_4 emissions from other cows (non-dairy mature and young) [kt CH_4/year]	17.09	17.26	17.04	17.01	17.02
9	AGRICULTURE	Direct N_2O emissions from soils due to synthetic fertilizer application [kt N_2O-N/year]	1.58	1.5	1.51	1.47	1.43
		Direct N_2O emissions from manure management [kt N_2O-N/year]	0.52	0.52	0.51	0.50	0.49
		Dairy cattle population [1000 heads]	177	171	160	156	148
10	WASTE	Specific CH_4 emissions from landfills [kt/kt]	0.06	0.10	0.09	0.08	0.09
		CH_4 emissions from landfills [kt]	70.00	53.94	38.45	27.50	19.69
		Municipal solid waste going to landfills [kt]	1137	553	441	328	218

7. Quantitative estimates of the effects of policies and measures on emission by sources and removals by sinks of greenhouse gases

Quantitative estimates of the effects of policies and measures on emissions by sources and removals by sinks of greenhouse gases for years 2025, 2030, 2035 and 2040 for two scenarios are given in table 7-1 below.

The effects are presented for the sectors covered by the EU ETS, the non-ETS sectors according to Regulation (EU) 2018/842 (ESR sectors) and LULUCF according to Regulation (EU) 2018/841.

Table 7-1: Quantitative estimates of the effects of policies and measures [kt CO_2eq]

'With existing measures' scenario	2025	2030	2035	2040
ETS	7,238	7,225	6,917	6,573
ESR	15,673	15,397	14,354	13,273
LULUCF	-2,492	-2,398	-2,412	-2,386

'With additional measures' scenario	2025	2030	2035	2040
ETS	6,921	6,772	6,235	5,680
ESR	15,123	14,376	13,180	11,894
LULUCF	-2,492	-2,398	-2,412	-2,386

8. Assessment of the contribution of policies and measures to the realization of the Low-Carbon Development Strategy until 2030 with a view to 2050

An assessment of the contribution of policies and measures in achieving the goals of the Low-Carbon Development Strategy until 2030 with a view to 2050 cannot be given since the Low-Carbon Development Strategy has not yet been adopted. An Action Plan for the implementation of the Low-Carbon Development Strategy for a five-year period is being prepared, in which indicators for monitoring the implementation of the Low-Carbon Development Strategy will be defined.

9. Annual emission allocations

9.1. Amount of annual emission allocation

Outside the EU ETS, Member States' emission reduction targets are set on the basis of GDP per capita under Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual reductions of greenhouse gas emissions in Member States from 2021 until 2030, contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013. 525/2013 (hereinafter: Regulation (EU) 2018/842). The Republic of Croatia has determined the necessary reduction of greenhouse gas emissions outside the EU ETS by 7% by 2030 compared to 2005.

Commission Implementing Decision (EU) 2020/2126 of 16 December 2020 on setting out the annual emission allocations of the Member States for the period from 2021 to 2030 pursuant to Regulation (EU) 2018/842 of the European Parliament and of the Council determined the allocation expressed in absolute terms for Croatia from 2021 to 2030 (Table 9-1).

9.2. Expected progress in meeting the emission limit up to the amount of the national annual allocation

Table 9-2 shows estimates of the amount of greenhouse gas emissions of the Republic of Croatia in the period 2021-2030 and the differences achieved in relation to national annual quotas. The differences were calculated by subtracting the amount of the national annual allocation and the estimated annual emissions of the sector outside the EU ETS, in accordance with Regulation (EU) 2018/842 (ESR sector).

It can be noticed that the expected projections for both scenarios are below the prescribed annual national allocation.

Table 9-1: Annual emission allocations for the Republic of Croatia for the period 2021-2030 [t CO_2eq]

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Annual emission allocation	17,661,355	16,544,497	16,576,348	16,608,198	16,640,049	16,671,899	16,703,749	16,735,600	16,767,450	16,799,301

Table 9-2: Projected development in relation to the national annual allocation in period 2021 – 2030 [kt CO_2eq]

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Annual allocation	17,661.355	16,544.497	16,576.348	16,608.198	16,640.049	16,671.899	16,703.749	16,735.600	16,767.450	16,799.301
Scenario										
'With measures' scenario	16,004.34	16,078.29	16,027.36	15,816.51	15,672.73	15,637.61	15,543.90	15,505.04	15,464.20	15,397.01
'With additional measures' scenario	15,835.85	15,813.68	15,666.73	15,361.71	15,122.93	14,992.18	14,804.73	14,671.00	14,535.67	14,375.75
Difference										
'With measures' scenario	1,657.015	466.207	54.988	791.688	967.319	1,034.289	1,159.849	1,230.56	1,303.25	1,402.291
'With additional measures' scenario	1,825.505	730.817	909.618	1,246.488	1,517.119	1,679.719	1,899.019	2,064.6	2,231.78	2,423.551

9.3. Information on planned additional policies and measures for achieving larger emission limitations than the amount of national annual allocation

The Act on Climate Change and Ozone Layer Protection (OG 127/19) requires that for each year in the period from 2021 to 2030, the greenhouse gas emissions of the Republic of Croatia emitted from sectors not covered by the ETS are limited to the amount of the national annual allocation.

It is also stipulated that compliance with the obligation to limit emissions to the national annual allocation is the responsibility of state administration bodies responsible for environmental protection, energy, industry, transport, construction, economy, entrepreneurship, agriculture, forestry and tourism.

The Ministry of Economy and Sustainable Development monitors the implementation of measures through the compliance process, which must be implemented by all EU Member States. Also, the Government of the Republic of Croatia, at the proposal of the Ministry of Economy and Sustainable Development, may decide to determine additional measures to reduce greenhouse gas emissions in order to meet the obligation.

As shown in Table 9-2, the expected emission projections for both scenarios are significantly below the prescribed annual national allocations. Therefore, the foreseen measures that achieve the emission limit will result in a slightly higher limit and will ultimately reach a limit higher than the amount of the national annual allocation until 2030.

10. Information on the links between different policies and measures

The Act on Climate Change and Ozone Layer Protection (OG 127/19) stipulates that development documents of certain areas and activities must be harmonized with the principles, basic goals, priorities and measures of low-carbon development for certain sectors set out in the Low-Carbon Development Strategy of the Republic of Croatia until 2030 with a view to 2050.

The objectives and measures envisaged by these documents should enable the Republic of Croatia to harmonize policies in all sectors in order to achieve economic growth and at the same time reduce greenhouse gas emissions.

References

1. Guidelines for the preparation of national reports for Parties included in Annex I to the Convention (FCCC/CP/1999/7, Part II)
2. Guidelines for the preparation of information under Article 7 of the Kyoto Protocol (FCCC/KP/CMP/2005/8, Annex 2)
3. Fourth Biennial Report of the Republic of Croatia under the United Nations Framework Convention on Climate Change (UNFCCC), Ministry of Economy and Sustainable Development, 2019
4. National Inventory Report 2020, Croatian greenhouse gas inventory for the period 1990-2018 (NIR 2018), Ministry of Economy and Sustainable Development, 2020
5. Energy Development Strategy of the Republic of Croatia until 2030 with a view to 2050 (OG 25/20)
6. Integrated National Energy and Climate Plan of the Republic of Croatia for the period from 2021 to 2030, Ministry of Economy and Sustainable Development, 2019
7. The Long-term Strategy to Stimulate Investment in the Renovation of the National Building Stock in Croatia (OG 28/19)
8. Waste Management Strategy of the Republic of Croatia (OG 130/05)
9. Waste Management Plan of the Republic of Croatia for the period 2017 – 2022 (OG 3/17)

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