Icelandic Environment and Energy Agency

2025

Report on Policies, Measures, and Projections

Projections of Greenhouse Gas Emissions in Iceland until 2055

Report on Policies, Measures, and Projections 2025

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Preface

Report pursuant to Articles 18(1) and 39 of Regulation (EU) No 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action (hereafter referred to as "the Governance Regulation"), and Articles 36, 37, and 38 of Commission Implementing Regulation (EU) 2020/1208 on structure, format, submission processes and review of information reported by Member States pursuant to Regulation (EU) 2018/1999 and repealing Commission Implementing Regulation (EU) No 749/2014.

Icelandic Environment and Energy Agency, Reykjavík, 15 March 2025

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List of Abbreviations

BAT	Best Available Techniques
CLRTAP	Convention on Long-Range Transboundary Air Pollution
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
EAI	Environment Agency of Iceland (*Umhverfisstofnun*)
EC	European Commission
EEA	European Economic Agreement
ESR	Effort Sharing Regulation (EU) 2018/842
EU	European Union
EU ETS	European Union Emission Trading System
F-gas	Fluorinated Gas
FSRE	Government Construction Contracting Agency – Government Property Agency (*Framkvæmdasýsla ríkisins – Ríkiseignir*)
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GWP	Global Warming Potential
IAAC	Icelandic Agricultural Advisory Centre (*Ráðgjafarmiðstöð landbúnaðarins*)
IEEA	Icelandic Environment and Energy Agency (*Umhverfis- og orkustofnun*)
ISC	Interministerial Steering Committee
IPPU	Industrial Processes and Product Use
IRCA	The Icelandic Road and Coastal Administration
ISK	Icelandic Króna
JCD	Joint Committee Decision (EEA) 269/2019
kt CO2e	Kilotons of Carbon Dioxide Equivalent
LaFI	Land and Forest Iceland (*Land og skógur*)
LULUCF	Land Use, Land-Use Change, and Forestry
MEEC	Ministry of the Environment, Energy and Climate
MMR	Monitoring Mechanism Regulation (EU) 525/2013
NA	Not Applicable
NDC	Nationally Determined Contribution
NE	Not Estimated
NGO	Non-Governmental Organisation
NID	National Inventory Document
NO	Not Occurring
ODS	Ozone Depleting Substances
OECD	Organisation for Economic Co-operation and Development
PaMs	Policies and Measures
PFC	Perfluorocarbons
SWDS	Solid Waste Disposal Site
WAM	With Additional Measures
WEM	With Existing Measures
WOM	Without Measures
UNFCCC	United Nations Framework Convention on Climate Change

Executive Summary

This report on Policies, Measures and Projections presents information on Iceland's greenhouse gas mitigation policies and measures, the national system for reporting on these emissions and policies, as well as anthropogenic emission projections until 2055. Iceland is submitting this in line with the reporting obligations described in Section 2.1. It is submitted every other year to the European Commission and to the EFTA Surveillance Authority.

The projections are reported both as totals and disaggregated by the scope of following regulations:

- Emissions falling under the EU Emissions Trading System Directive (Directive 2003/87/EC – EU ETS)
- Emissions falling under the Effort Sharing Regulation (Regulation (EU) 2018/842 - ESR)
- Emissions and Removals Under the LULUCF Regulation (Regulation (EU) 2018/841).

The Ministry of the Environment, Energy, and Climate (*Umhverfis-, orku- og loftslagsráðuneytið*) (MEEC)[1] published an updated Climate Action Plan in 2024, which forms the basis for the policies and measures reported here. The complete description of these policies and measures can be found in Chapter 3.

Iceland reports emissions of CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. NF_3 is not used in Iceland. Emissions that are reported in CO_2 equivalents are calculated using Global Warming Potentials (GWPs) based on the 100-year time horizon GWPs presented in the Fifth Assessment Report (AR5) of the IPCC, as per Decision 18/CMA.1 and Commission Delegated Regulation (EU) 2020/1044.

For this submission, Iceland includes two projection scenarios: 'With Existing Measures' (WEM) and 'With Additional Measures' (WAM). Overall the national total emissions are expected to decrease throughout the projection period, as shown in Figure ES.1. However, due to the increase in national total emissions since 1990, mainly due to increased emissions from Industrial Processes, the emissions are still projected to be higher than the 1990 emissions in 2030, see Table ES.1.

The distribution of reported greenhouse gas emissions over the UNFCCC sectors from 1990 and WEM and WAM projections until 2055, excluding LULUCF, is shown in Figure ES.2.

A more detailed consideration of projected emissions can be found in Chapter 4.

[1] A Governmental Agreement between the previous government took force on 1 February 2022. Consequently, the title of the Ministry, previously called *The Ministry for the Environment and Natural Resources*, was changed to *The Ministry of the Environment, Energy, and Climate*.

Table ES.1. Total historical and projected GHG emissions, excluding and including LULUCF, in the WEM and WAM scenarios 1990-2055 [kt CO_2e].

	1990	2005	2023	2030	2040	2055	Proportional difference 1990-2030 [%]	Proportional difference 1990-2055 [%]
WEM Total Emissions								
Total w/o LULUCF [kt CO_2e]	3,707	4,129	4,646	4,393	3,685	2,858	18.5%	-22.9%
Total w LULUCF [kt CO_2e]	11,850	12,221	12,631	12,223	11,193	9,180	3.2%	-22.5%
WAM Total Emissions								
Total w/o LULUCF [kt CO_2e]	3,707	4,129	4,646	4,156	3,455	2,816	12.1%	-24.0%
Total w LULUCF [kt CO_2e]	11,850	12,221	12,631	11,987	10,963	9,138	1.2%	-22.9%

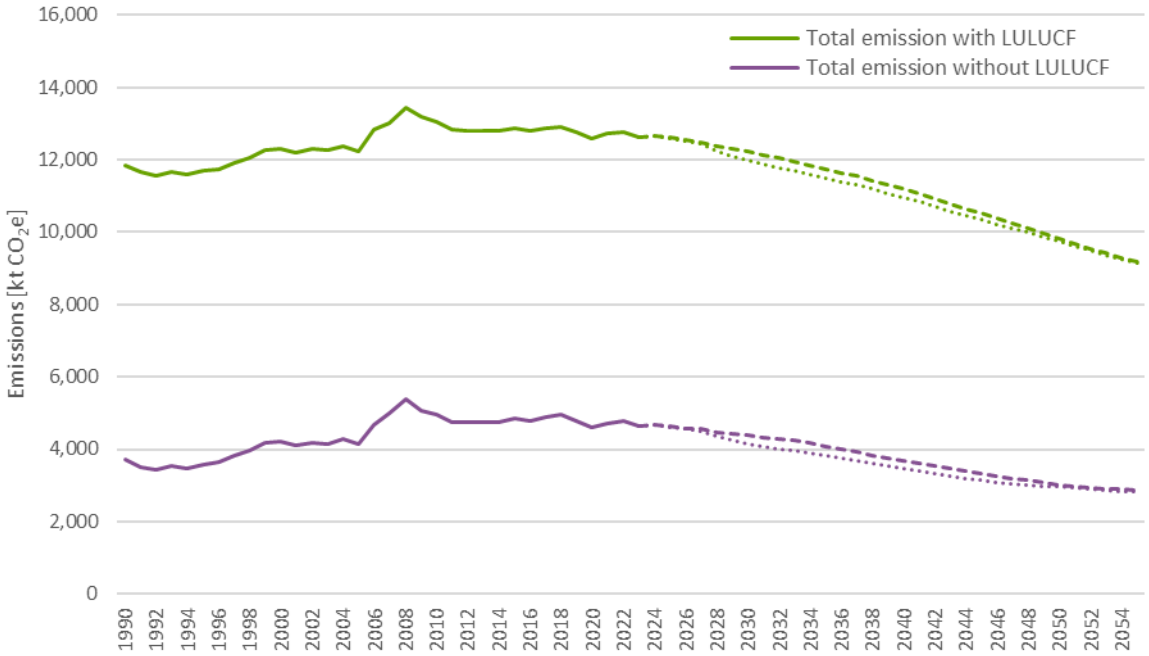

Figure ES.1. Total historical and projected emissions for WEM and WAM scenarios, both including and excluding LULUCF, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

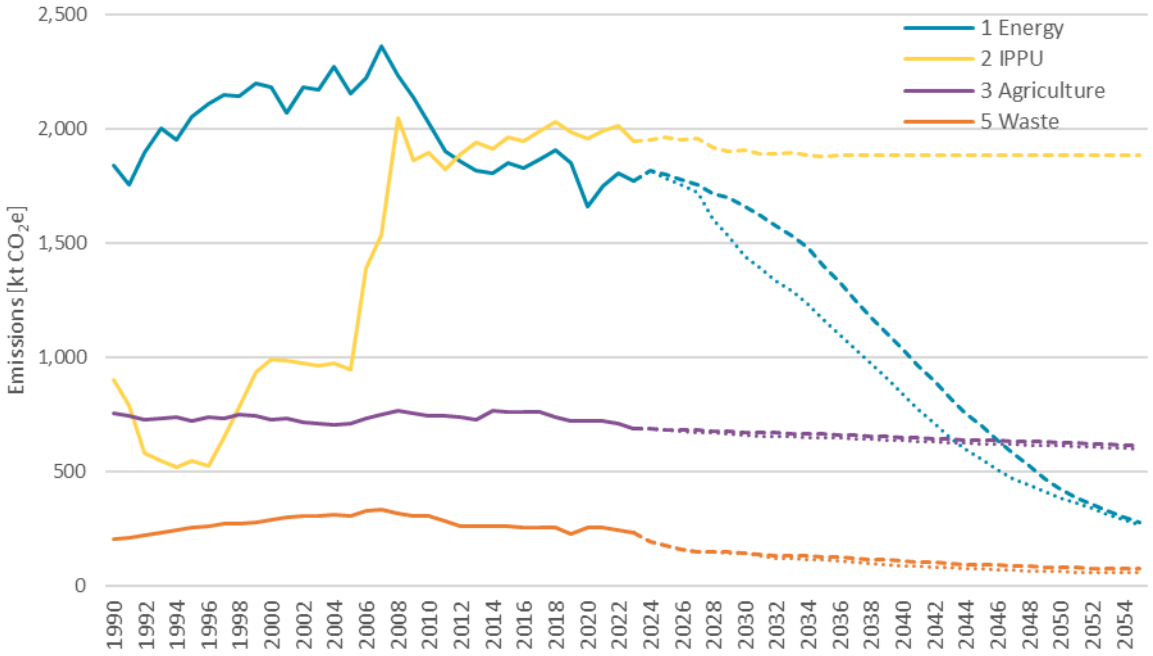

Figure ES.2. Total historical and projected emissions for WEM and WAM scenarios for all sectors except LULUCF, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

The Effort Sharing (ESR) target for 2030 currently in force in Iceland is 29% reduction in emissions relative to 2005, in line with the EU's former overall goal of 40% reduction in emissions in 2030 relative to 1990. At the time of this writing, work is in progress to determine a new target for Iceland in line with EU's updated target of 55% reduction in emissions in 2030 relative to 1990.

The projected ESR emissions in the WEM scenario for the year 2030 are 20% lower compared to 2005 emissions, and for the WAM scenario the emissions are 27% lower than in 2005.

As shown in Table ES.2, in both scenarios, Iceland is estimated to have more emissions than annual emission allocations in the years 2021-2030. This is also presented in Figure ES.3.

Table ES.2. ESR emissions for the WEM and WAM scenario for 2021-2030 compared to annual emission allocations (AEAs) [kt CO_2e].

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
ESR WEM emissions	2,880	2,883	2,811	2,798	2,757	2,696	2,665	2,576	2,538	2,500
ESR WAM emissions	2,880	2,883	2,811	2,798	2,742	2,668	2,622	2,455	2,353	2,265
AEAs	2,876	2,803	2,730	2,657	2,584	2,510	2,437	2,364	2,291	2,218
Difference in AEAs and WEM	-4	-80	-81	-142	-173	-186	-227	-212	-247	-282
Difference in AEAs and WAM	-4	-80	-81	-141	-159	-157	-185	-91	-63	-48

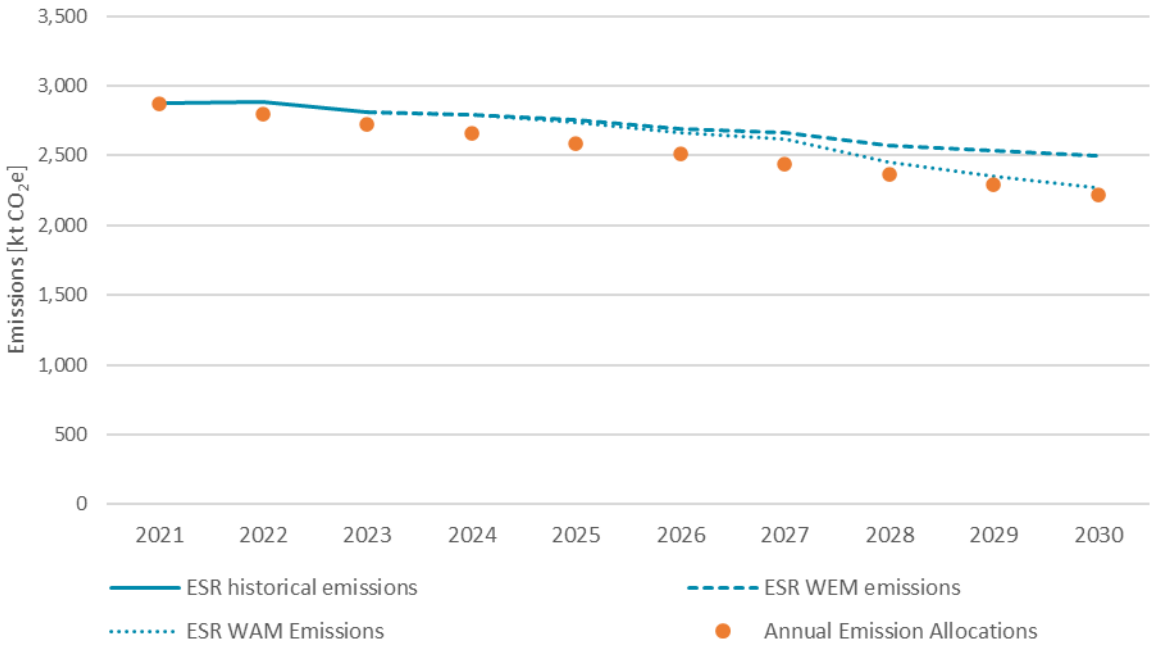

Figure ES.3. ESR emissions for the WEM and WAM scenario for 2021-2030 compared to annual emission allocations (AEAs)

1 Introduction

This report presents information on Iceland's greenhouse gas mitigation policies and measures (PaMs), the national system for reporting on these emissions and policies, as well as anthropogenic emission projections until 2055. It is submitted every other year, on odd years, to the European Commission and to the EFTA Surveillance Authority according to Art. 18 of Regulation No 2018/1999, as added to Protocol 31 to the EEA Agreement, and includes total greenhouse gas projections, as well as disaggregated projections by the scope of following regulations:

- Emissions falling under the EU Emissions Trading System Directive (Directive 2003/87/EC – EU ETS)
- Emissions falling under the Effort Sharing Regulation (Regulation (EU) 2018/842 - ESR)
- Emissions and Removals Under the LULUCF Regulation (Regulation (EU) 2018/841).

Chapter 2 covers the legal basis for this reporting and a description of the National System related to reporting on PaMs and projections, as well as cross-cutting information related to the reporting.

Chapter 3 covers Iceland's climate action and a description of climate mitigation PaMs that are implemented, adopted, and planned in Iceland.

Chapter 4 contains projections of future anthropogenic greenhouse gas emissions. The "With existing measures (WEM)" scenario is the national baseline scenario that includes all measures that are either implemented or adopted. The "With additional measures (WAM)" scenario is a national scenario that includes all measures that are either implemented, adopted, or planned.

Chapter 5 discusses the sensitivity analysis performed for the projections.

On top of implemented, adopted or planned measures, the current Climate Action Plan includes additional ideas for further policies and measures, which are listed in Annex A, and a number of projects aimed at supporting the climate actions. The projects are listed in Annex B.

2 National System and Cross-Cutting Information

2.1 Legal Arrangements

Under the Paris Agreement, Iceland is acting jointly with the EU member states, Iceland and Norway to reach a target of 55% reduction of greenhouse gas emissions by 2030 compared to 1990 levels. For the period 2021-2030 Iceland has committed to:

a) Continuing its participation in the EU Emissions Trading Scheme (EU ETS) according to Directive 2003/87/EC. The main activities covered by the EU ETS in Iceland (apart from aviation and maritime transport) are the production of aluminium, ferrosilicon, and silicon metal.

b) Reducing emissions falling under the scope of the EU's Effort Sharing Regulation (Regulation (EU) 2018/842 – ESR) The main activities and sectors within the scope of the ESR are road transport, fishing, agriculture, waste, and F-gases. The Effort Sharing target for 2030 currently in force in Iceland is 29% reduction relative to 2005, in line with the EU's former overall goal of 40% reduction in emissions in 2030 relative to 1990. At the time of this writing, work is in progress to determine a new target in line with EU's updated target of 55% reduction in emissions in 2030 relative to 1990.

c) Implementing the reporting and accounting rules pertaining to emissions and removals from the Land Use, Land-use Change, and Forestry (LULUCF) as prescribed by the LULUCF regulation (Regulation (EU) 2018/841) The LULUCF target for 2030 currently in force in Iceland is according to the no-debit rule; as for the ESR discussed above, work is in progress to determine a LULUCF target in line with the EU's updated 2030 targets.

Iceland's and Norway's collaboration with the EU Member States for the 2030 emissions targets was agreed upon with the uptake in October 2019 of relevant EU legislation into Protocol 31 to the European Economic Area (EEA) Agreement. This includes the LULUCF Regulation (Regulation (EU) 2018/841) and the Effort Sharing Regulation (Regulation (EU) 2018/842) (as mentioned above), as well as relevant articles of the Governance of the Energy Union Regulation (Regulation (EU) 2918/1999) pursuant to the rules regarding the greenhouse gas inventories (including reporting on national systems, policies and measures, and projections) and replacing the MMR Regulation (Regulation (EU) No 525/2013). In 2021, two additional acts were added to the EEA Agreement: Commission Implementing Regulation (EU) 2020/1208 on structure, format, submission processes and review of information to be reported, as well as Commission Delegated Regulation (EU) 2020/1044 on GWP, reporting guidelines and union inventory system. Iceland has implemented the LULUCF Regulation and the ESR through the Climate Act No 70/2012 ("lög um loftslagsmál nr. 70/2012").

Following the EU's updates to the ESR, the LULUCF Regulation and the Governance Regulation to align with the new target of 55% reduction by 2030 relative to 1990, work is currently underway to incorporate the updated inventory-related acts. This includes Regulation (EU) 2023/839 amending the LULUCF regulation, Regulation (EU) 2023/857

amending the ESR, and Commission Implementing Regulation (EU) 2024/1281 amending Commission Implementing Regulation (EU) 2020/1208.

At the time of writing, the Climate Act No 70/2012 is under complete revision by the Ministry of the Environment, Energy and Climate. Following the amendment of the Climate Act, Regulation No 520/2017 (on data collection and information from institutions related to Iceland's inventory of greenhouse gas emissions and carbon removal) will be revised to reflect the most recent legal framework.

Iceland's reporting obligations are stipulated in the aforementioned regulations. In accordance, Iceland reports the greenhouse gas emissions by sources or enhanced removals by sinks, the information on national systems, policies and measures (PaMs) regarding climate change mitigation, and national projections of anthropogenic greenhouse gas emissions by sources and their removal by sinks. The Articles and Annexes for the reporting are summarised in Table 2.1.

Table 2.1. Legal (EU) basis for the reporting on National Systems, Policies and Measures, and Projections.

Reporting Obligation	Governance Regulation (EU) 2018/1999	Implementing Regulation (EU) 2020/1208
National Systems for policies and measures and projections	Art. 39	Art. 36, Annex XXIII
National GHG policies and measures	Art. 18(1)(a)	Art. 37, Annex XXIV
National projections of anthropogenic GHG	Art. 18(1)(b)	Art. 38, Annex XXV

According to Annex VII of the Governance Regulation, the report should include total greenhouse gas projections, as well as disaggregated projections by the scope of following regulations:

- Emissions falling under EU ETS Directive 2003/87/EC.
- Emissions falling under the ESR (Regulation 2018/842).
- Emissions and Removals Under the LULUCF Regulation (Regulation 2018/841).

2.1.1 National Legislation

2.1.1.1 Climate Act No 70/2012

The Climate Act establishes the national system for the estimation of greenhouse gas emissions by sources and removals by sinks, including the work on policies, measures, and projections. It also establishes a national registry and describes the roles and responsibilities of the relevant government agencies involved. It also serves as the legal basis for the development of national Climate Action Plans and Progress Reports. This law, in conjunction with Act No 96/2023 on the EU Emissions Trading System (see section 2.1.1.4 below), ensures conditions for the government to fulfil its international obligations regarding climate change.

The objectives of the Climate Act are the following:

- to reduce greenhouse gas emissions efficiently and cost-effectively
- to increase carbon removal from the atmosphere
- to promote adaptations to the consequences of climate change

- to create conditions for the government to fulfil its international obligations regarding climate change, and
- to reach carbon neutrality no later than 2040

Article 5 of the Climate Act describes the obligation of the Minister of the Environment, Energy, and Climate to see to the production of a climate mitigation action plan (referred to in this report as the Climate Action Plan). It also establishes the Interministerial Steering Committee (ISC) for Climate Action composed by members appointed by the Minister of the Environment, Energy, and Climate as well as ministers from other relevant ministries; the ISC is to report annually to the Minister of the Environment, Energy and Climate on the progress of the Climate Action Plan. The report shall review emissions trends and whether they are in accordance with plans and make recommendations for improvement. Article 5 also provides the legal basis for Regulation No 786/2024 on the steering committee for the production and follow up of climate-related action plans (see 2.1.1.3 below).

Article 5 also establishes Iceland's Climate Council and defines its role in providing restraint and advising the government regarding Iceland's Climate Action Plans.

Article 6 of the Climate Act addresses Iceland's greenhouse gas inventory. It states that the Icelandic Environment and Energy Agency (*Umhverfis- og orkustofnun*) (IEEA), an agency under the auspices of the Ministry of the Environment, Energy, and Climate (MEEC), carries the overall responsibility for the national inventory. The IEEA compiles and maintains the greenhouse gas emission inventory for the energy, industrial processes and product use, agriculture, and waste sectors, whereas the LULUCF sector is compiled and maintained by Land and Forest Iceland (*Land og skógur*) (LaFI). This Article covers requirements relating to the historical greenhouse gas inventory, as well as to the compilation of policies and measures, and the greenhouse gas projections.

The Climate Act specifies that the IEEA is allowed to request all data needed for the inventory from relevant authorities, agencies, companies, and individuals; the obligations are further elaborated in Regulation No 520/2017.

At the time of writing, the Climate Act No 70/2012 is under complete revision by the Ministry of the Environment, Energy and Climate, amongst other things to reflect changes to the various institutions responsible for the inventory, and the incorporation of updated EU regulations concerning the targets for greenhouse gas emission reductions by 2030.

2.1.1.2 Regulation No 520/2017

Icelandic Regulation No 520/2017 covers data collection and information from institutions relates to Iceland's inventory on greenhouse gas emissions and removal of carbon from the atmosphere and was adopted pursuant to Art. 6.3 of Act No 70/2012. The regulation establishes formally the data provision modalities, such as content, format, and deadlines for data submission to the IEEA.

This regulation will be updated to reflect the most recent legal framework once the Climate Act No 70/2012 has undergone the revisions mentioned above in the previous section.

2.1.1.3 Regulation No 786/2024 on the Interministerial Steering Committee (ISC)

Icelandic Regulation No 768/2024 was adopted pursuant to Art. 5.5 of Act No 70/2012. It describes the procedure for nominations into the ISC, which is responsible for the production and follow-up of both a climate mitigation action plan (referred to in this report as the Climate Action Plan) as well as a climate adaptation plan. The regulation also covers the role of the ISC, as well as further elaboration on the content and timelines relating to the climate mitigation action plan and the climate adaptation plan. The regulation also provides that a representative from the IEEA is to be involved in the work of the ISC; currently, two members of the Emissions Inventories Unit at the IEEA are participating in this work.

2.1.1.4 Act No 96/2023 on the EU Emissions Trading System

Icelandic Act No 96/2023 on the EU Emissions Trading System implements EU Directive 2003/87/EC in Iceland and covers the activities of operators of installations, aircraft operators and shipping companies that fall under the scope of the EU Emissions Trading System (EU ETS). Under the System the polluters pay for their greenhouse gas emissions. It is based on a "cap and trade" principle, where emissions allowances, giving right to emit one tonne of CO_2 equivalent can be traded.

According to Article 3 of this act, the IEEA is the competent authority for the EU ETS in Iceland.

2.2 Institutional Arrangements

The Ministry of the Environment, Energy, and Climate (MEEC) holds responsibility for activities related to the development and implementation of the national policies and measures in climate change prevention.

The Icelandic Environment and Energy Agency (IEEA)[2], which is under the jurisdiction of the MEEC, carries the overall responsibility for the national inventory as well as:

- climate change policy evaluation and reporting on policies and measures
- development and reporting on projections of anthropogenic greenhouse gas emissions
- reporting on national systems for policies, measures, and projections.

The Emissions Inventories Unit (*teymi losunarbókhalds*), which is within the Air and Climate Department (*svið loftslagsmála*) at the IEEA carries out this responsibility. That includes data collection, emission estimations, performing quality control (QC) and sensitivity analysis, submission of reports, receiving quality assurance (QA) and

[2] The Icelandic Environment and Energy Agency is a newly formed joint institution of part of what used to be the Environment Agency of Iceland (EAI, *Umhverfisstofnun*) and what used to be the National Energy Authority (*Orkustofnun)*; the merger took place 1 January 2025.

publication of the official submissions. The same unit is also responsible for the air pollutant inventory, reported to the Convention on Long-range Transboundary Air Pollution (CLRTAP).

Land and Forest Iceland (*Land og skógur*) (LaFI)[3] is the agency responsible for reporting on policies and measures and projections of Land Use, Land-Use Change, and Forestry (LULUCF). LaFI reports the information to the IEEA, which submits everything together to the EU and the EFTA Surveillance Authority (ESA). The same experts are also responsible for the LULUCF sector in the historical greenhouse gas inventory.

Figure 2.1 below shows a flow chart of the institutional arrangements in place for this year's submission of the Report on Policies and Measures and Projections. Additionally, it lists the main data providers.

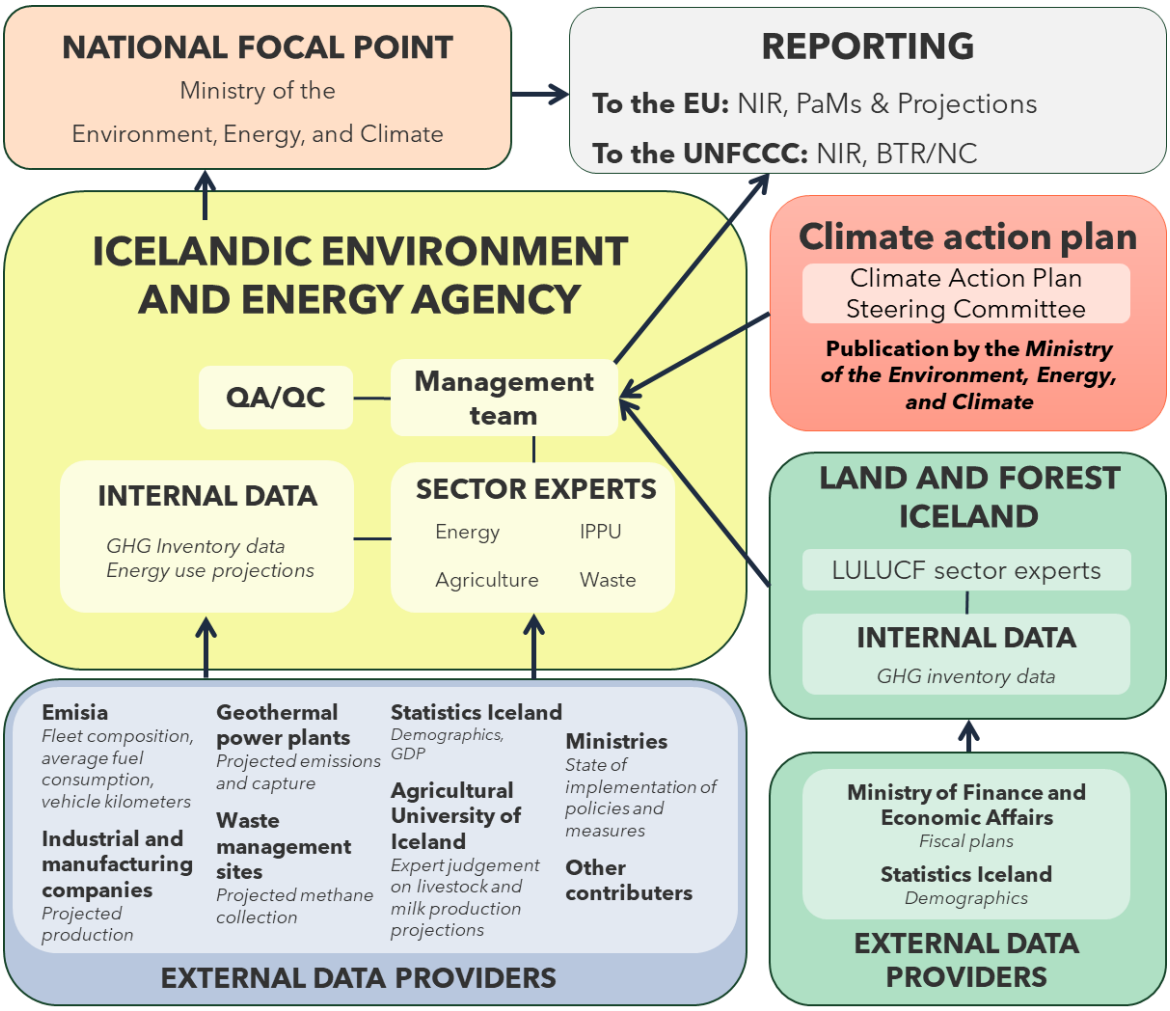

Figure 2.1. Information flow chart of institutional arrangements for reporting on Policies, Measures and Projections in Iceland.
Note: BTR = Biennial Transparency Report, NC = National Communication.

[3] Land and Forest Iceland is a joint institution of the Soil Conservation Service of Iceland and the Icelandic Forest Service which began operations 1 January 2024.

The MEEC is responsible for implementation of national climate policy. As described in section 2.1.1 above, the minister for the environment, energy and climate is responsible for appointing an Interministerial Steering Committee (ISC) that formulates proposals for climate measures and oversees their implementation. The representatives of the ISC are appointed based on nominations from all ministries for three years at a time. The Association of Icelandic Local Authorities (*Samband íslenskra sveitarfélaga*) also has a representative in the ISC.

The IEEA, the Icelandic Meteorological Office and Land and Forest Iceland (LaFI) have an advisory role to the ISC regarding the development and implementation of climate measures.

2.3 Procedural and Administrative Arrangements

The Icelandic Environment and Energy Agency (IEEA) is responsible for ensuring the timeliness, transparency, accuracy, consistency, comparability, and completeness of the information reported on policies, measures, and projections.

A date is set by which the members of the ISC provide a list of the policies and measures connected to their respective ministries to be included in the reporting, along with relevant information regarding each policy and measure, e.g., status of implementation, start year of implementation etc. The IEEA and LaFI experts then decide whether they can do an ex-ante analysis of these measures and whether they can be included in a projection scenario.

This report is based on the measures figuring in the latest version of Iceland's Climate Action Plan (2024). Every measure published in the Climate Action Plan includes details about the entity responsible for that specific measure, a performance indicator (where available), funding (where available), and impact on emissions (where available). All measures in the Climate Action Plan, which are implemented, adopted or planned are included, but other relevant measures may be included as well, if deemed appropriate. Implemented and adopted measures are used in the WEM scenario if they can be evaluated or are believed to affect the projections, and planned measures are used in the WAM scenario if they can be evaluated.

To ensure accuracy and completeness, the projections follow the greenhouse gas source and sink categorisations and methodology recommended by the European Commission (based on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and revised UNFCCC CRT tables for inventory reporting) and are reported ensuring that all relevant categories are described. Full geographical coverage is assured.

The reporting uses publicly available data to the extent possible.

The same inventory experts from the IEEA and LaFI prepare both the historical greenhouse gas inventory and the reporting on policies, measures, and projections, ensuring consistency and comparability between the historical and projected greenhouse gas emissions in each sector.

The PaMs and Projections lead reporters are advisors to the ISC, which involves regular meetings with the MEEC and ensures that the MEEC is kept up to date on reporting

guidelines related to PaMs and Projections reporting. Based on issues raised during these meetings, the MEEC facilitates communications between other relevant ministries and the IEEA where applicable.

The Emissions Inventories Unit aims at having the data and report ready a few weeks before the deadline to leave enough time to perform the remaining QA/QC activities.

2.3.1 Information Collection Process

Since the historical and projected greenhouse gas emissions are prepared by the same inventory experts, the experts prepare the calculations of both timelines in parallel. Data collected for the historical inventory forms the basis for the projections. Description of the data collection for the historical inventory can be found in Iceland's latest NID.

Below is an overview of the main data collection process for the projections and ex-ante analysis:

- The IEEA and LaFI collect the bulk of data necessary to estimate future emissions (activity data and emission factors) for their respective sectors. Activity data is collected from various institutions and companies, as well as inhouse, as listed and illustrated above in Section 2.2.
- Information on status of implementation of policies and measures is obtained from the ministries through the members of the ISC.
- Data is collected mostly through e-mail requests.
- To obtain expert judgement on assumptions that need to be made, inquiries are sent out to specialists. The inventory experts often provide the specialists with a few different scenarios, and the specialists are asked to pick the scenario they deem most likely and provide a justification for their choice.

Data for evaluation of measures are collected from projects and programs supported by various institutions, ministries, companies, and associations. All measures which are evaluated are included in the reported WEM or WAM scenario. Some measures are assumed to be included the WEM scenario projections, although it was not possible to quantify them specifically.

2.3.2 Alignment with the National Inventory System

The same inventory experts from the IEEA and LaFI, who prepare the historical greenhouse gas inventory, are involved in the PaMs and projections reporting, ensuring consistency and comparability between the historical and projected greenhouse gas emissions in each sector.

2.3.3 QA/QC Procedures

All the expert organisations providing information for the reporting have their own quality assurance and quality control (QA/QC) procedures. The IEEA is responsible for collecting and combining all the information and for ensuring that further quality checks are performed.

The QA/QC procedures for the greenhouse gas inventory is explained in Iceland's latest National Inventory Document and large parts of them also apply to the projections.

2.3.4 The Process for Selecting Assumptions, Methodologies, and Models for Making Projections of Anthropogenic Greenhouse Gas Emissions

Sectoral experts from the IEEA and LaFI are responsible for selecting the assumptions, methods, and models to use for the projections. The IEEA's experts work closely and interact regularly with other key experts in order to establish an appropriate set of assumptions and methods. The IEEA and LaFI experts transparently document the data sources, methods, and assumptions.

2.3.5 Procedures for the Official Consideration and Approval of the National System

The Ministry of the Environment, Energy, and Climate has tasked IEEA with the overall responsibility of the work related to the reporting on Policies and Measures and Projections in accordance with the EU legislations implemented by the decision of the EEA Joint Committee No 269/2019 and transposed into Icelandic law by an amendment to the Climate Act No 70/2012.

Regular meetings between the Climate Unit at the MEEC and the inventory experts at the IEEA and LaFI, as well as the participation of the PaMs and Projections coordinators in the meetings of the ISC ensure that all involved parties are well informed and engaged in the process.

2.4 Links to Arrangements on Integrated National Energy and Climate Reports Pursuant to Art. 17 of Regulation (EU) 2018/1999

According to the EEA Joint Committee Decision No 269/2019, Iceland implements only the provisions of the Governance Regulation relating to climate reporting. Art. 17 is not implemented, but according to the Declaration on national plans[4], related to the EEA Joint Committee Decision No 269/2019[5], Iceland developed, on a voluntary basis, a national plan describing how Iceland intends to fulfil the commitments undertaken in relation the implementation of Regulation (EU) 2018/841 and Regulation (EU) 2018/842. The National Plan on Climate was published in 2020[6].

Reporting on policies and measures in the National Plan was based on the Report on Policies and Measures and Projections submitted by the EAI in 2019.

[4] Declaration by Iceland and Norway on national plans, published by *EFTA* in October 2019.
[5] EEA Joint Committee Decision No 269/2019, published by *EFTA* in October 2019.
[6] Iceland's National Plan, published by Government of Iceland in October 2019.

2.5 Institutional Administrative and Procedural Arrangements for Domestic Implementation of the EU's Nationally Determined Contribution

Under the Paris Agreement, Iceland is acting jointly with the EU member states, Iceland and Norway to reach a target of 55% reduction of greenhouse gas emissions by 2030 compared to 1990 levels. As previously described, this includes participation in the EU ETS as well as implementation of the ESR and the LULUCF Regulation. The arrangements for domestic implementation of the ESR and the LULUCF Regulation are mostly related to the Climate Action Plan and are described in paragraphs 2.1, 2.2 and 2.3 above and paragraph 3.2 below.

2.6 Stakeholder Engagement

After Iceland's first submission of the Report on Policies, Measures and Projections in 2019, the Environment Agency of Iceland (EAI) (now part of the Icelandic Environment and Energy Agency (IEEA)) organised expert review meetings for the sectors (Energy, IPPU, Agriculture, and Waste) to get feedback and constructive criticism from external experts in order to improve future reporting. Consequently, the EAI gained some valuable insights and contacts that have been maintained throughout the preparation stage of subsequent reports.

The energy experts from the IEEA are in regular contact with the geothermal power plants in Iceland to make the projections as accurate as possible. When preparing the energy forecast for Iceland, experts from the IEEA have been in consultation with various stakeholders, such as electricity distributors, suppliers and the national transmission operator, the Marine and Freshwater Research Institute, ISAVIA, the Icelandic Tourist Board, the Automotive Industry Association, the Energy- and Climate Fund and various project managers of new energy transition projects. These entities have provided valuable insight on key parameters used for the energy forecast in Iceland.

The IPPU experts from the IEEA are in regular contact with the main industry manufacturers in Iceland to make the projections as accurate as possible. There is also regular collaboration with the Ministry of the Environment, Energy, and Climate (MEEC), which has updated the F-gas import quota regulation twice.

In 2022, a new Working Group on Climate Action in Agriculture and LULUCF was established by the Ministry of Food, Agriculture and Fisheries (the Ministry of Industries since January 1, 2025), with the goal of improving and strengthening climate mitigation measures in these sectors. The working group has representatives from the IEEA, LaFI, the MEEC, the Agricultural University of Iceland, the Farmer's Association of Iceland, and the Icelandic Agricultural Advisory Centre. This group meets a few times a year and has proven valuable for the agricultural inventory experts.

The IEEA has established a waste expert group within the Agency, with experts from different departments who work on various waste related issues, including operating permits, surveillance, data gathering, circular economy projects and greenhouse gas

inventories. Input from members of the waste group was taken into account when deciding the assumptions for the waste projections.

2.7 Uncertainty Analysis

The uncertainty analysis of the historical greenhouse gas inventory is explained in Iceland's latest National Inventory Document. The uncertainty analysis of the historical inventory is based on the Approach 1 – error propagation of the 2006 IPCC Guidelines (Vol.1, Chapter 3, Table 3.2). The uncertainties of activity data are collected from data providers, evaluated based on expert judgements, or derived from the values proposed in the 2006 IPCC Guidelines. The uncertainties of default emission factors are derived from the values proposed in the 2006 IPCC Guidelines or the 2023 EMEP/EEA Guidebook. The error propagation is used to estimate the uncertainty for each category, the inventory as a whole and the latest inventory year compared to the base year.

In order to better understand the uncertainty of the national greenhouse gas projections it is planned to make a complete sensitivity analysis of the whole inventory for the 2027 submission. All major parameters in each sector will be taken into account in the analysis.

2.8 General Assessment of Completeness

Iceland has completed WEM projections for all inventory sectors as outlined in Table 2.2. Furthermore, Iceland has completed WAM projections for the sectors: Energy (1), Agriculture (3), and Waste (5).

Table 2.2. GHG source and sink categories for emission projections.

Sector	CO_2	CH_4	N_2O	HFC	PFC	SF_6	NF_3
Total excluding LULUCF	✓	✓	✓	✓	✓	✓	NO
Total including LULUCF	✓	✓	✓	✓	✓	✓	NO
1A1a Public Electricity and Heat Production	✓	✓	✓	NA	NA	NA	NA
1A1b Petroleum Refining	NO	NO	NO	NA	NA	NA	NA
1A1c Manufacture of Solid Fuels and Other Energy Industries	NO	NO	NO	NA	NA	NA	NA
1A2 Manufacturing Industries and Construction	✓	✓	✓	NA	NA	NA	NA
1A3a Domestic Aviation	✓	✓	✓	NA	NA	NA	NA
1A3b Road Transportation	✓	✓	✓	NA	NA	NA	NA
1A3c Railways	NO	NO	NO	NA	NA	NA	NA
1A3d Domestic Navigation	✓	✓	✓	NA	NA	NA	NA
1A3e Other Transportation	✓	✓	✓	NA	NA	NA	NA
1A4 Other Sectors	✓	✓	✓	NA	NA	NA	NA
1A5 Other	✓	✓	✓	NA	NA	NA	NA
1B1 Solid Fuels	NO	NO	NO	NA	NA	NA	NA
1B2 Oil and Natural Gas and Other Emissions from Energy Production	✓	✓	NA	NA	NA	NA	NA
1C CO_2 Transport and Storage	NE/NO	NA	NA	NA	NA	NA	NA
2A Mineral Industry	✓	NA	NA	NA	NA	NA	NA
2B Chemical Industry	NO	NO	NO	NO	NO	NO	NO
2C Metal Industry	✓	✓	NA	NA	✓	NA	NA
2D Non-Energy Products from Fuels and Solvent Use	✓	NA	NA	NA	NA	NA	NA
2E Electronics Industry	NA	NA	NA	NO	NO	NO	NO
2F Product Uses as Substitutes for ODS	NA	NA	NA	✓	✓	NA	NA
2G Other Product Manufacture and Use	✓	✓	✓	NA	NA	✓	NA

Sector	CO_2	CH_4	N_2O	HFC	PFC	SF_6	NF_3
2H Other (please specify)	NO	NO	NO	NO	NO	NO	NO
3A Enteric Fermentation	NA	✓	NA	NA	NA	NO	NA
3B Manure Management	NA	✓	✓	NA	NA	NA	NA
3C Rice Cultivation	NA	NO	NA	NA	NA	NA	NA
3D Agricultural Soils	NA	NA	✓	NA	NA	NA	NA
3E Prescribed Burning of Savannahs	NA	NO	NO	NA	NA	NA	NA
3F Field Burning	NA	NO	NO	NA	NA	NA	NA
3G Liming	✓	NA	NA	NA	NA	NA	NA
3H Urea Application	✓	NA	NA	NA	NA	NA	NA
3I Other Carbon-Containing Fertilisers	✓	NA	NA	NA	NA	NA	NA
3J Other (please specify)	NO	NO	NO	NA	NA	NA	NA
4A Forest Land	✓	✓	✓	NA	NA	NA	NA
4B Cropland	✓	✓	NO, NA	NA	NA	NA	NA
4C Grassland	✓	✓	✓	NA	NA	NA	NA
4D Wetlands	✓	✓	NO, NE, NA	NA	NA	NA	NA
4E Settlements	✓	NE	✓	NA	NA	NA	NA
4F Other Land	NE, NA	NA	NA	NA	NA	NA	NA
4G Harvested Wood Products	✓	NA	NA	NA	NA	NA	NA
4H Other	NO	NO	NO	NA	NA	NA	NA
5A Solid Waste Disposal	NA	✓	NA	NA	NA	NA	NA
5B Biological Treatment of Solid Waste	NA	✓	✓	NA	NA	NA	NA
5C Incineration and Open Burning of Waste	✓	✓	✓	NA	NA	NA	NA
5D Wastewater Treatment and Discharge	NA	✓	✓	NA	NA	NA	NA
5E Other (please specify)	NO	NO	NO	NA	NA	NA	NA

Note: NO = not occurring, NA = not applicable, NE = not estimated

2.9 Improvements Undertaken or Planned

The Emissions Inventories Unit at the IEEA puts together an improvement plan for the next submission every spring after the NID, the IIR and the PaMs and Projections report have been handed in, and after the most recent recommendations from the UNFCCC and EU reviews have been analysed. The improvement plan is approved by the Director of the Air and Climate Department at the IEEA. Improvements made in the historical inventory affect the projection values as well. More information on those can be found in Iceland's 2025 National Inventory Document.

In order to better understand the uncertainty of the national greenhouse gas projections it is planned to make a complete sensitivity analysis of the whole inventory for the 2027 submission. All major parameters in each sector will be taken into account in the analysis.

2.9.1 Planned Improvements to the National System

In order to better implement the requirements of Articles 26 to 29 of Commission Implementing Regulation (EU) 2020/1208, there are plans to set up a steering committee for the inventory, as a part of the national system. The exact roles and modalities of functioning of such a committee are yet to be defined; it is thought that such a committee will be coordinated by the IEEA and be composed of representatives from Land and Forest Iceland, as well as other major data providers and stakeholders. The aim of such a committee will be, amongst other things, enhanced QA of the inventory as well as prioritisation of improvements needed. Furthermore, it is planned to establish separate working groups for various key subsectors of the inventory, to enhance collaboration

between experts in the Emissions Inventories Unit, various ministries as well as experts from other institutions, companies, universities, and research centres.

As mentioned in Section 2.1.1, Climate Act No 70/2012 is under complete revision by the Ministry of the Environment, Energy and Climate, amongst other things to reflect changes to the various institutions responsible for the inventory, and the incorporation of updated EU regulations concerning the targets for greenhouse gas emission reductions by 2030.

3 Policies and Measures

3.1 Introduction

This chapter provides an overview of climate-related policies and measures in Iceland, focusing on the emission-reduction efforts necessary to meet Iceland's commitments towards the EU, the Paris Agreement, and the UNFCCC, as well as to serve as stepping stones in order to reach Iceland's carbon neutrality goal by 2040.

As mentioned in Section 2.1 above, Iceland is acting jointly with the EU member states and Norway to reach an overall target of 55% reduction of greenhouse gas emissions by 2030 compared to 1990 levels. This includes ongoing participation in the EU Emissions Trading System (EU-ETS), reducing emissions falling under the scope of the Effort Sharing Regulation (ESR) and implementing the reporting and accounting rules as prescribed by the LULUCF regulation.

In recent years, the share of emissions falling under the scope of the EU ETS has been just below 40% of the total annual emissions excluding LULUCF and international bunkers, with just over 60% contributing to Iceland's emissions falling under the scope of the ESR.

Emissions from stationary operators falling under the scope of the EU ETS originate for the most part from metal production (primary aluminium, ferroalloys, and silicon production). These emissions are largely dominated by process emissions from metal production, i.e., emissions related to the oxidation of carbon-containing fuels which in turn is linked to the reduction of raw materials into metal. Only a very small percentage belongs to emissions solely coming from fuel combustion.

In recent years, approximately 60% of the emissions falling under the ESR originated from the energy sector. Half of the emissions from this sector were from road transport, while the fishing industry accounted for a large part of the rest. Approximately one fourth of the ESR emissions come from the agriculture sector, whereas F-gas emissions and solid waste disposal make up most of the rest of the emissions.

3.2 Iceland's Climate Action

According to the Climate Act, the government shall, in consultation with stakeholders, review and update the Climate Action Plan every fourth year based on international commitments and the government's goals. Climate measures shall be developed and put in motion by the Interministerial Steering Committee (ISC). The ISC shall also prepare an annual progress report on the status of implementation of the climate plan and its measures, emissions development and whether the development is in accordance with the Climate Plan. The Climate Action Plan has been updated four times since the requirement was added to the Climate Act and three progress reports have been published.

The following subsection list Iceland's emission reduction targets and climate action plans.

3.2.1 Iceland's National Emission Reductions Targets

3.2.1.1 2030 target:

Iceland is acting jointly with the EU member states and Norway to reach an overall target of 55% reduction of greenhouse gas emissions by 2030 compared to 1990 levels. This includes participation in the EU ETS, and implementation of the ESR and the LULUCF Regulations.

3.2.1.2 2040 target:

Iceland has implemented a national carbon neutrality target through Act No 95/2021[7], amending Climate Act No 70/2012, stating that Iceland is to achieve carbon neutrality no later than 2040.

3.2.2 2024 Climate Action Plan

The preparation of an updated climate action plan began in the beginning of 2023 with a comprehensive consultation process with the main business and industry sectors in Iceland. This consultation resulted in the *Climate Indicators for the Business Sector*[8] being published in June 2023.

Following that, an updated climate action plan from the government was prepared by a group of experts from across the government, with the Ministry of the Environment, Energy and Climate steering the work in collaboration with other ministries and relevant agencies. A temporary working group was appointed to oversee the work and submit a proposal for an updated plan to the interministerial steering committee. The action plan was published in June 2024[9] (Ministry of the Environment, Energy and Climate, 2024). The action plan includes 104 measures which are implemented, adopted, or planned; all of these are described under the relevant chapters in this report. 25 additional ideas for further policies and measures were also published, along with 57 projects aimed at supporting the implementation or execution of the climate actions. The Climate Action Plan is designed to be a dynamic document in constant development and is a key foundation for the government's 2030 climate target and 2040 carbon neutrality goal.

The Climate Action Plan was subjected to public consultation in the summer of 2024, and new representatives were appointed to the interministerial steering committee and are now leading the ongoing work of implementation and further development of the action plan.

3.2.3 Past Action Plans

Iceland ratified the 1992 United Nations Framework Convention on Climate Change (UNFCCC) in 1993. In 1995, the government of Iceland adopted an implementation

[7] Carbon neutrality goal update to law No 70/2012: https://www.althingi.is/altext/stjt/2021.095.html.
[8] Loftslagsvegvísar atvinnulífsins: Climate Indicators for the Business Sector (in Icelandic).
[9] 2024 Climate action plan (in Icelandic).

strategy based on the commitments of the Framework Convention. The domestic implementation strategy was revised in 2002, based on the commitments of the Kyoto Protocol and the provisions in the Marrakech Accords.

A climate change strategy was adopted by the Icelandic government in February 2007[10]. The long-term strategy was to reduce net greenhouse gas emissions of Iceland by 50-75% by 2050, compared to 1990 levels. In the shorter term, the strategy aimed to ensure that emissions of greenhouse gases would not exceed Iceland's obligations under the Kyoto Protocol. In November 2010, the Icelandic government adopted a Climate Action Plan[11] to execute the strategy. However, little funding followed the plan, and its implementation was not entirely successful.

In 2012, the Climate Act No. 70/2012 introduced the legal requirement for a Climate Action Plan. In 2015, in light of the Paris Agreement and the ongoing second commitment period of the Kyoto Protocol, the government published a new Climate Action Plan[12] presenting 16 climate-related projects, with eight projects specifically aimed at reducing greenhouse gas emissions. This plan included funding earmarked for specific projects.

3.2.3.1 The 2018 Climate Action Plan

In 2018, Iceland's government published a new Climate Action Plan spanning the years 2018-2030[13]; this time in association with significant funding earmarked for the implementation and follow-through of the actions (49 million Euros). This plan included 34 actions and was developed with the aim to reach Iceland's international 2030 target. At that time, the ESR emission reduction target was a 29% reduction compared to emissions in the year 2005, and reaching carbon neutrality by the year 2040.

The actions listed in the plan were mostly centred around two main strategies:

- Electrification of the energy sector by substituting fossil fuel combustion with the use of renewable electricity.
- Enhanced carbon removal by better land use and increased efforts in afforestation/reforestation.

The Climate Action Plan (2018) was submitted to public consultation in the fall of 2018 and consequently updated, taking into account results from the public consultation, further implementation work by the Climate Council, and the Interministerial Steering Committee (ISC) for Climate Action, as well as results of the calculations shown in the report on Policies, Measures, and Projections published in 2019, resulting in the publication of the 2020 Action Plan.

[10] Stefnumörkun í loftslagsmálum: Climate Change Strategy 2007.
[11] Aðgerðaáætlun í loftslagsmálum: 2010 Climate Action Plan, in Icelandic.
[12] Sóknaráætlun í loftslagsmálum – Stöðuskýrsla um framgang verkefna: Progress report for the 2015 Climate Action Plan, in Icelandic.
[13] Aðgerðaáætlun í loftslagsmálum 2018-2030: Climate Action plan 2018-2030, in Icelandic.

3.2.3.2 The 2020 Climate Action Plan

In 2020, the government of Iceland published an updated Climate Action Plan spanning the years 2020-2030[14], consisting of 48 measures (existing, updated or new relative to the 2018 plan) and an associated budget of 300 million Euros. Emphasis was placed on immediate action.

Two progress reports have been published to follow up on the progress of the 2020 Climate Action Plan. The first one was published in September 2021[15]. Besides the 48 measures put forth in the 2020 Climate Action Plan, two new greenhouse gas mitigation measures were introduced in the progress report. According to the progress report, thirty measures (out of fifty in total) had been implemented, 17 were in progress[16] and three were in preparation stages. The second progress report was published in July 2022[17]. No new mitigation measures were introduced in the progress report compared to the previous progress report in 2021. According to the 2022 progress report, 34 measures had been implemented, 15 were in progress and one was in preparation.

3.2.4 Cost-Benefit Analysis of Actions in the 2024 Climate Action Plan

A cost-benefit analysis of the land use, land-use change and forestry actions within the 2024 Climate Action Plan was published in December 2024[18]. The analysis was commissioned by the Ministry of Environment, Energy and Climate and conducted by the Institute of Economic Studies at the University of Iceland. The Institute had previously conducted such an analysis in 2022 for the 2020 Climate Action Plan. The net benefit of the LULUCF measures in the 2024 Climate Action Plan, as of 2030, is ISK 99 billion. All of the measures are cost-effective and provide more benefits than they cost. However, they are not all equally efficient in terms of investment and land use. Wetland restoration is the most efficient measure in terms of both land use and investment.

The consulting company KPMG in Iceland was hired by the Ministry of Environment, Energy and Climate to perform a cost-benefit analysis on actions focused on ESR emission reductions in the 2024 Climate Action Plan to help with prioritization of actions for implementation. KPMG finished a preliminary analysis in early 2025, which is being used to help decision making by the ministries. The analysis has not been published, and the results are therefore not available at the time of this writing.

[14] Aðgerðaáætlun í loftslagsmálum til 2030: 2020 Climate Action Plan, updated second edition, in Icelandic
[15] Progress report on the Climate Action Plan, published in September 2021 (in Icelandic)
[16] Different terminology was used to denote the status of measures in the progress reports compared to here. "In progress" is defined as following: Work is underway to implement the operation and many of the work components are well underway.
[17] Progress report on the Climate Action Plan, published in July 2022 (in Icelandic)
[18] Cost-benefit analysis of LULUCF measures in the 2024 Climate Action Plan, published in December 2024 (in Icelandic)

3.2.5 LULUCF Mitigation Plan

In August 2022, the Icelandic government published a new policy document for soil conservation and forestry to 2031[19]. Alongside the publication of this document, a five-year action plan was published with 27 actions aimed at implementing the policy[20]. The policy and action plan are reviewed every five years, as is required in the Land Reclamation Act No 155/2018 and the Forests and Silviculture Act No 33/2019.

The Icelandic government has increased these efforts with the aim to restore ecosystems to conserve and enhance biological diversity, increase ecosystem resilience against natural disasters and increase the potential of rural societies, relying on these ecosystems to sustain their livelihoods.

Iceland is using land (ecosystem) restoration, reforestation, and afforestation as mitigation efforts against climate change. These efforts are carried out in collaboration with farmers and other landowners, NGO's and local authorities and include restoring native vegetation in degraded areas, restoring drained wetlands and afforestation to create a woodland resource.

3.2.6 Iceland's Long-Term Low Emission Development Strategy

Iceland communicated its first Long-Term Low Emission Development Strategy *On the Path to Climate Neutrality*[21] (hereafter called "Strategy"), based on the encouragements in the Paris Agreement, in October 2021. The Strategy declares that Iceland is committed to reducing its overall greenhouse gas emissions and reaching climate neutrality no later than 2040 and become fossil fuel free by 2050, which should set Iceland on a path to net negative emissions.

3.2.7 Updated ETS for Aviation and Maritime Transport and CORSIA

Iceland continues to participate in the EU Emissions Trading System (ETS) which was revised with respect to its emission reduction objectives as part of the EU 'Fit for 55' package. The aim of the updated ETS legislation is to reach a target of 62% reduction of greenhouse gas emissions within ETS sectors by 2030 compared to emission levels of 2005. The tightening of the target, gradually including also maritime transport, is part of the concerted effort to achieve a 55% overall greenhouse gas emission reduction by 2030 with respect to 1990.

In Iceland, it is mainly heavy industries, aviation and maritime transport which are covered by the EU ETS. Icelandic Act No 96/2023 on the EU Emissions Trading System implements EU Directive 2003/87/EC in Iceland and covers the activities of operators of installations, aircraft operators and shipping companies that fall under the scope of the EU ETS, including the CORSIA system.

[19] Policy for soil conservation and forestry to 2031, published August in 2022.
[20] Action plan for soil conservation and forestry 2022-2026, published in August 2022.
[21] On the Path to Climate Neutrality, published in October 2021.

Emissions from maritime transport involving larger ships (over 5,000 gross tonnes) will gradually be covered by the ETS system. The ETS extension to maritime transport entered into force on 1 January 2024. Shipping companies will need to surrender emission allowances for the preceding year partially in 2025 and 2026, and then fully in 2027.

In addition to the EU Emissions Trading System (ETS), Iceland is participating in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), an international system for carbon offsetting and reduction in international aviation. The goal of CORSIA is to achieve carbon-neutral growth in international aviation starting from 2020, through carbon offsetting and reducing carbon dioxide emissions via specific project certifications. Several EU regulations concerning the monitoring obligations of air carriers in international flights under the CORSIA framework have already been integrated into Icelandic law.

3.3 Energy (Excluding Transport)

The Energy Sector (1) contains all emissions from fuel combustion, energy production, and distribution of fuels. Emission from transport (mobile sources) is reported in a separate chapter.

Iceland almost exclusively uses renewable energy sources (hydropower, geothermal energy, and wind power) for electricity and heat production, and therefore emissions from Energy Industries (1A1) are low (< 1% of Iceland's emission from Energy including transport) compared to other countries that utilise a higher share of fossil fuels.

Within the Energy sector (excl. Transport) the largest sources are Manufacturing Industries and Construction (1A2) and Geothermal Energy Production (1B2d).

Three energy consumption measures are currently implemented or planned, along with five implemented and one planned measure specifically targeting energy supply, with the objective of reducing greenhouse gas emissions (see Table 3.1). One action has been quantified specifically, green back-up power for industry and society (102).

Table 3.1. Energy Policies and Measures.

PaM ID Nation. ID	Name Entity responsible	Objective GHG	Type of instrument	Start year	Status	Scenario Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	2055
101 S.1.B1	**Experimental project for high-temperature heat pumps in the fish industry**	To prepare a pilot project aimed at demonstrating the feasibility and effectiveness of using high-temperature heat pumps in the Icelandic fish industry, particularly in fishmeal plants.										Not included
	Ministry of the Environment, Energy and Climate	CO_2	Research	2024	Implemented	Estimate of impact not available.						
102 S.1.B2	**Green back-up power for industry and society**	To replace all fossil fuels for back-up power for electricity and heat production.										WAM
	Ministry of the Environment, Energy and Climate	CO_2	Planning Research	2025	Planned	-0.9	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2
103 S.1.B3	**Simplifying licensing procedures in the interests of energy transition**	To increase efficiency and clarity, reduce the number of bottlenecks, shorten processing times, and improve transparency and information flow in relation to licensing, to make it possible to obtain more green energy in the interests of energy transition, without compromising on environmental requirements.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Economic Regulatory	2021	Implemented	Estimate of impact not available.						
104 S.1.B4	**Construction work on electricity transmission and distribution systems supporting the government's climate goals**	Planning to consider the climate benefits inherent in construction in each case and support energy transition.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Planning	2024	Implemented	Estimate of impact not available.						
105 S1.B5	**Increased energy production for energy transition**	To ensure the electrical energy necessary for energy transition on land, sea, and in the air.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Planning Regulatory	2024	Implemented	Estimate of impact not available.						
106 S.1.B6	**Collaborative project on further utilisation of geothermal resources**	Iceland's heating system to go fully geothermal (rate currently 90%)										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Planning Research	2023	Implemented	Estimate of impact not available.						

PaM ID Nation. ID	Name Entity responsible	Objective GHG	Type of instrument	Start year	Status	Scenario Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	2055
107 S.1.B7	**Better energy efficiency**	To promote electricity savings through better energy efficiency in all sectors of the economy in favour of energy exchange.										Not included
	Ministry of the Environment, Energy and Climate	CO_2	Planning Regulatory	2025	Planned	Estimate of impact not available.						
108 Þ.1.A3	**Targeted support for energy transition via the Climate and Energy Fund**	To maximise the direct measurable reduction in social emissions related to grants from the Climate and Energy Fund.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Economic	2023	Implemented	Estimate of impact not available.						
109 Þ.1.A5	**Increase and possible expansion of the carbon tax**	To reduce the use of fossil fuels and promote energy transition.										WEM
	Ministry of Finance and Economic Affairs	CO_2	Fiscal	2012	Implemented	Estimate of impact not available.						

3.3.1 Experimental project for high-temperature heat pumps in the fish industry (101)

This action is about assessing the opportunities, challenges, and feasibility of a possible pilot project involving high-temperature heat pumps operating on renewable energy which are connected to fishmeal plants. The objective is to prepare a pilot project aimed at demonstrating the feasibility and effectiveness of using high-temperature heat pumps in the Icelandic fish industry, particularly in fishmeal plants. If successful, the electricity demand will be significantly reduced, creating the possibility of prioritizing electricity supply and thereby reducing oil consumption that results from electricity shortages.

3.3.2 Green back-up power for industry and society (102)

This action aims at defining the phased requirement for gradually replacing fossil fuels for back-up power for electricity and heat production with renewable fuels and other ecological solutions. The final target is to replace all fossil fuels for back-up power for electricity and heat production.

The goal is a systemic transition by phasing out fossil fuel use in energy production. Initially, a blending requirement will be introduced, such as a mandate to use HVO (hydrotreated vegetable oil) in backup power. This approach minimizes additional emissions from fuel combustion for energy production while alternative green backup solutions are explored. An ongoing analysis within the energy and utility sector is assessing the feasibility of various options.

3.3.2.1 Quantification

The measure green back-up power for industry and society (102) is a part of the WAM projection scenario.

The quantification of the measure assumes blending requirements for back-up power for electricity and heat production. The blending requirement are as follows; 10% in 2026; 30% in 2028; 60% in 2029 and 100% in 2030. A comparison is made between the emissions based on fossil fuel for back-up power for electricity and heat production and the emissions based on the blending requirements. The calculation and results are presented below.

For both scenarios, the methodology for the calculation of the greenhouse gas emissions from the fuel usage is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

Table 3.2 and Figure 3.1 shows the quantified emission impacts and the difference between the scenarios. It can be seen that a blending requirement will drive emission reductions in this sector.

Table 3.2. Quantified emission impact on 1A1a Public electricity and heat generation of the measure: Green back-up power for industry and society (102) [kt CO_2e].

1A1a Public electricity and heat generation	2025	2030	2035	2040	2045	2050	2055
Emissions without measure [kt CO_2e]	8.73	3.17	3.17	3.17	3.17	3.17	3.17
Emissions with measure [kt CO_2e]	7.83	0.01	0.01	0.01	0.01	0.01	0.01
Impact of measure [kt CO_2e]	-0.90	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2
Impact of measure [%]	-10%	-100%	-100%	-100%	-100%	-100%	-100%

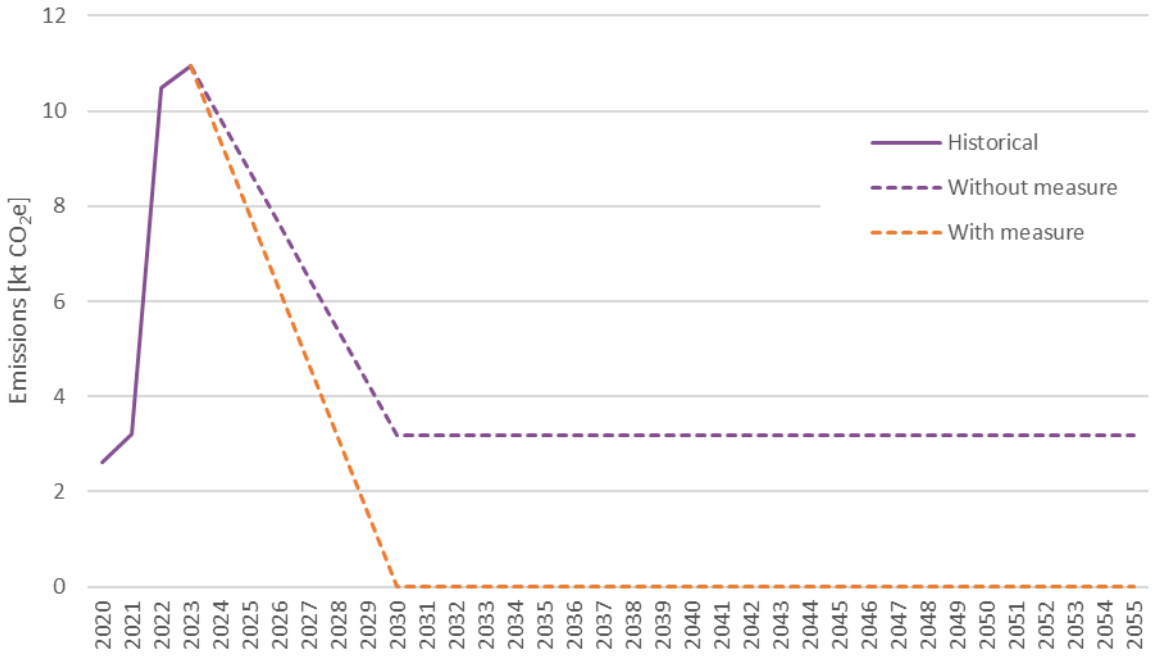

Figure 3.1. GHG emissions [kt CO_2e] from Public electricity and heat generation (1A1a). Comparison between the emissions with and without the measure.

3.3.3 Simplifying licensing procedures in the interests of energy transition (103)

Purpose of this action is to review the institutional structure in the field of environment and energy, together with an analysis and redesign of licensing processes. Identifying possible opportunities for improvement is also a key factor in speeding up projects and construction work in the interests of energy transition.

The objective is to increase efficiency and clarity, reduce the number of bottlenecks, shorten processing times, and improve transparency and information flow in relation to licensing, in order to facilitate the realisation of green energy potentials in the interests of energy transition, without compromising on environmental requirements.

Iceland's climate goals require a comprehensive review of the legal framework for energy and climate issues to accelerate the development of green energy in support of climate actions and objectives. Projects and initiatives related to renewable energy production

are of vital public interest, and all permitting processes must reflect this priority. Simplifying regulations is, therefore, a key climate policy objective.

3.3.4 Construction work on electricity transmission and distribution systems supporting the government's climate goals (104)

The government's climate goals and the climate benefits inherent in individual construction projects shall be a determining factor in all planning for the development and enhancing of the electricity transmission and distribution system. Ways need to be sought to prioritise projects delivering the greatest climate benefits. The objective is to ensure that planning takes into account the climate benefits inherent in construction in each case in order to support the energy transition.

It is essential that all developments in the electricity transmission and distribution system are determined with consideration of the expected climate benefits at any given time. Decisions should be based on an assessment of alternatives and prioritisation aimed at reducing fossil fuel use, whether in electricity or heat production or in industries such as fishmeal factories. Efforts should be made to prioritise projects that yield the greatest climate benefits, including the electrification of industries that do not currently operate on priority power sources.

3.3.5 Increased energy production for energy transition (105)

This action is about ensuring an adequate supply of energy if domestic production of electric fuel or hydrogen is to be used for energy transition in land transport, sea-related activities, and air transport. This energy transition depends on technological development and the availability of equipment and investment, while the supply of appropriate energy sources needs to be ensured. Iceland's journey to full energy transition will be in steps, with increased energy production, improved energy efficiency, increased energy saving, technological development, and expansion of existing power plants. The objective is to ensure the electrical energy necessary for energy transition on land, sea, and in the air.

Iceland has a unique position when it comes to the energy transition, and its climate goals call for action in energy production and strengthening the transmission system. Having completed the nationwide electrification and district heating rollout, the country now faces its biggest challenge: replacing fossil fuels in land transport, maritime activities, and aviation. This transition depends on technological advancements, equipment availability, and related investments, but ensuring a sufficient supply of suitable energy sources is crucial.

3.3.6 Collaborative project on further utilisation of geothermal resources (106)

The effort put into geothermal exploration and utilisation for electric utilities needs to be increased in order to phase out fossil fuels as back-up power. Analysis and implementation need to be carried out with economic partners and the government, in cooperation with the energy and utilities sector, which leads to large-scale efforts to map resources and potential for geothermal utilisation. The objective is for Iceland's heating system to go fully geothermal (rate currently 90%).

In collaboration with the energy and utility sector, the government will lead a major initiative to map resources and assess geothermal utilization potential. This effort is already underway and will be a decisive factor in achieving Iceland's climate goals.

Geothermal exploration must be approached as a long-term project and an ongoing necessity requiring the perseverance of the energy and utility sector.

It is important to recognize that geothermal exploration serves two key purposes: energy security and climate action. The direct climate benefit comes from reducing oil consumption in district heating systems during supply shortages, while the indirect benefit arises when electricity is freed up for use in the energy transition.

3.3.7 Better energy efficiency (107)

This action targets the need to create a legal and technical environment to support better energy efficiency, yielding an estimated saving potential of approximately 1,500 GWh, i.e. 8% of the Iceland's total electricity production in 2022. With a power shortage looming in the coming years, it is important to utilise green energy even better than before, since energy transition and climate action will undeniably require large amounts of electricity. One example of this is the potential for utilising waste heat from local industry, which could save around 50 MW of electricity. Leveraging this energy savings potential, however, mandates a comprehensive review of the legal and technical framework surrounding waste heat utilisation. The objective is to promote electricity savings through better energy efficiency in all sectors of the economy in favour of energy exchange.

3.3.8 Targeted support for energy transition via the Climate and Energy Fund (108)

This action aims at clarifying the working rules and allocation of the initiative fund so that government authorities, business and society can work together on energy transition goals in a targeted and efficient way. The objective is to maximise the direct measurable reduction in ESR emissions related to grants from the Climate and Energy Fund.

The role of the Climate and Energy Fund is to accelerate the energy transition using proven technology. The fund thus contributes to energy security, as well as the efficient utilisation of the country's energy resources, directly reducing the use of fossil fuels and increasing the use of domestic renewable energy sources. The Climate and Energy Fund must also consider government policies at any given time, with the current focus being on reducing greenhouse gas emissions.

3.3.9 Increase and possible expansion of the carbon tax (109)

As part of the implementation of a new financing system for traffic and energy transition, in which excise duties on fuel are to be significantly reduced or eliminated, the carbon tax on fossil fuels was increased in early 2025 and possibilities to extend carbon tax coverage to cruise ships will be examined. The objective is to reduce the use of fossil fuels and promote energy transition.

Taxation on fossil fuels is an effective way to reduce greenhouse gas emissions. A carbon tax has been imposed on fossil fuels since 2013 and has been increased in several steps.

3.4 Transport

The Transport Sector contains all emissions from fuel combustion from mobile sources. That includes aviation, road transportation, navigation, and fishing.

There are no railways in Iceland, and therefore, these are reported as not occurring (NO). Emissions from international aviation and navigation are accounted for but they do not count towards the national total.

Emissions from the transport sector have accounted for 80-85% of the energy sector's (1) total greenhouse gas emissions (excl. international transport) in Iceland in recent years and road transport and fishing are the largest emissions sources.

29 transport measures are currently implemented, adopted, or planned with the objective of reducing greenhouse gas emissions. They are summarised in Table 3.3. Eight measures are related to the electrification or fuel change of the car fleet, five focus on promoting public transport, cycling or walking, seven target energy transition and emission reductions in marine or fishing related activities, three relate to the extension of charging and local electricity supply infrastructure, while six measures define emissions mitigation measures in the aviation sector.

Table 3.3. Transport Policies and Measures.

PaM ID Nation. ID	Name Entity responsible	Objective GHG	Type of instrument	Start year	Status	Scenario Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	2055
201 S.2.B2	**Energy transition for mobile machinery and equipment**	To increase the amount of clean-energy equipment supported by the Climate and Energy Fund.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Economic	2020	Implemented	Estimate of impact not available.						
202 S.5.A2	**Financial support for developing an efficient network of clean-energy filling stations**	An efficient network of clean-energy filling stations to have been established throughout Iceland.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Economic	2016	Implemented	Estimate of impact not available.						
203 S.5.B1	**Building cycle and pedestrian paths**	More pedestrian and cycle paths.										WEM
	Ministry of Infrastructure	CO_2	Economic Planning Regulatory	2020	Implemented	Estimated with measures Incentives for the purchase of bicycles (204) and Building a high-quality public-transport system in Greater Reykjavik (205).						
204 S.5.B2	**Incentives for the purchase of bicycles**	More use of active means of travel, with the share of public transport, cycling, and walking in Greater Reykjavik reaching 28% in 2028 and 26% outside of Greater Reykjavík.										WEM
	Ministry of Finance and Economic Affairs	CO_2	Fiscal	2020	Implemented	Estimated with measures Building cycle and pedestrian paths (203) and Building a high-quality public-transport system in Greater Reykjavik (205).						
205 S.5.B3	**Building a high-quality public-transport system in Greater Reykjavik**	Increased use of public transport in Greater Reykjavik, with the introduction of a high-quality public-transport system that reduces use of private cars.										WEM
	Ministry of Infrastructure	CO_2	Economic Planning	2019	Implemented	-4.8	-8.3	-6.5	-4.2	-1.9	-0.3	0[22]
206 S.5.B4	**Service-oriented operation of public transport enhanced throughout Iceland**	More use of public transport, with the share of public transport, cycling, and walking in Greater Reykjavik reaching 28% in 2028 and 26% outside of Greater Reykjavík.										WEM

[22] Joint evaluation of impact of measures 203, 204 and 205.

PaM ID Nation. ID	Name Entity responsible	Objective GHG	Type of instrument	Start year	Status	Scenario Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	2055
	Ministry of Infrastructure	CO_2	Economic Planning Regulatory	2012	Implemented	Estimate of impact not available.						
207 S.5.B5	**Public transport running on clean energy between Greater Reykjavik and KEF**	To reduce the number of journeys by car and reduce greenhouse-gas emissions from traffic between Greater Reykjavik and KEF (Suðurnes region).										WAM
	Ministry of Infrastructure	CO_2	Research	2025	Adopted	Estimate of impact not available.						
208 S.5.C1	**Full energy transition of national fleets and transport services by 2030**	Full energy transition of national fleets and transport services by 2030 (not exempted in Icelandic Regulation No 1330/2023).										WEM
	Ministry of Finance and Economic Affairs	CO_2	Economic	2023	Implemented	Estimate of impact not available.						
209 S.5.C2	**Subsidies for the purchase of vehicles running on clean energy from the Climate and Energy Fund**	To increase the share of newly registered vehicles running on clean energy, so that the share of vehicles running on clean energy in the total fleet rises.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Economic	2024	Implemented	-2.5	-14	-21	-19	-15	-6.3	-0.1
210 S.5.C3	**Public-transport vehicles running on clean energy**	To increase the share of newly registered vehicles running on clean energy in public transport, so that the share of vehicles running on clean energy in the total fleet of group-transport vehicles rises.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Economic	2024	Implemented	Estimate of impact not available.						
211 S.5.C4	**Progressively more stringent requirement for the share of renewable energy sources in land transport**	Higher share of renewable energy sources in land transport.										WAM
	Ministry of the Environment, Energy and Climate	CO_2	Planning	2025	Planned	-11	-64	-48	-28	-12	-1.3	-0.1
212 S.5.C7	**Changes to how vehicle benefits for vehicles running on clean energy are calculated**	The aim is to make a clearer distinction between vehicles powered by fossil fuels and vehicles powered by electricity, hydrogen, or methane.										WEM
	Ministry of Finance and Economic Affairs	CO_2	Fiscal	2024	Implemented	Estimate of impact not available.						

PaM ID Nation. ID	Name Entity responsible	Objective GHG	Type of instrument	Start year	Status	Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	Scenario 2055
213 S.5.C10	**Phasing out petrol and diesel vehicles in Iceland**	To achieve a greater share of vehicles running on clean energy in the total vehicle fleet of each relevant vehicle category.										WAM
	Ministry of Infrastructure	CO_2	Regulatory	2028	Planned	0	-109	-141	-107	-82	-13	-0.3
214 S.5.C11	**Banning new registrations of group and freight vehicles powered by fossil fuels in 2035**	To achieve a greater share of vehicles running on clean energy in the total vehicle fleet of each relevant vehicle category.										WAM
	Ministry of Infrastructure	CO_2	Regulatory Planning	2030	Planned	0	0	-7.8	-27	-31	-1.5	-0.03
215 S.6.A1	**Installing land connections in ports**	Land connections to be available to all docked vessels.										Not included
	Ministry of Infrastructure	CO_2	Economic Planning	2000	Implemented	Estimate of impact not available.						
216 S.6.A2	**Prioritising and developing electrical charging infrastructure in ports**	To increase the number of ports with electrical charging infrastructure										Not included
	Ministry of the Environment, Energy and Climate	CO_2	Planning Research	2025	Planned	Estimate of impact not available.						
217 S.6.B3	**Analysing the benefits of the regulation of additional fishing allowances for electrified inshore fishing vessels**	To increase the share of electric vessels in inshore fishing.										Not included
	Ministry of Food, Agriculture and Fisheries	CO_2	Economic Planning	2024	Implemented	Estimate of impact not available.						
218 S.6.B4	**Binding agreement between individual companies in the fishing industry and the government on reducing fuel consumption**	To reduce emissions from fuel consumption by fishing vessels by 50% by 2030, as compared to 2005.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Voluntary/ negotiated agreements	2025	Adopted	Estimate of impact not available.						
219	**Energy transition for state-owned ferries**	Purchase of new state-owned ferries running on renewable energy sources in order to reduce greenhouse-gas emissions from ferries										WEM

PaM ID / Nation. ID	Name / Entity responsible	Objective: GHG	Type of instrument	Start year	Status	Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	Scenario 2055
S.6.B5	Ministry of Infrastructure	CO_2	Economic	2024	Implemented	0	-0.6	-2.6	-2.6	-2.6	-2.6	-2.6
220 S.6.B6	**Energy transition for the state fleet**	10% share of renewable energy sources in the state fleet										WEM
	Ministry of Food, Agriculture and Fisheries, Ministry of Justice	CO_2	Economic	2024	Implemented	Estimate of impact not available.						
221 S.6.B7	**Energy transition in marine-related activities**	A higher percentage of ships running on clean energy in the country's total ship fleet.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Economic Fiscal	2020	Implemented	Estimate of impact not available.						
222 S.6.B8	**Minimum share of renewable energy in fishing vessels and domestic navigation**	The share of renewable energy in fishing vessels and domestic navigation to reach 10% in 2030.										WAM
	Ministry of the Environment, Energy and Climate	CO_2	Regulatory	2028	Planned	0	-49	-44	-36	-26	-16	-7.1
223 V.3.A1	**Introducing ETS for maritime transport**	To fully implement the ETS system for maritime transport.										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Economic	2024	Implemented	Estimate of impact not available.						
224 V.2.A1	**Developing alternate airports**	To reduce the amount of fuel needed to reach the nearest alternate airport and utilise aircraft fuel more effectively, thereby increasing flight efficiency.										WEM
	Ministry of Infrastructure	CO_2	Economic Planning	2023	Implemented	Estimate of impact not available.						
225 V2.A2	**Implementing more energy-efficient flight procedures**	To maximise energy efficiency and minimise greenhouse-gas emissions during approach and departure.										WEM
	Ministry of Infrastructure	CO_2	Voluntary/ negotiated agreements	2024	Implemented	Estimate of impact not available.						
226 V.2.A3	**Better take-off and landing traffic management**	To improve management and decision-making for arriving and departing aircraft, thus making more efficient use of aviation fuel, and reducing CO2 emissions.										Not included
	Ministry of Infrastructure	CO_2	Economic	2024	Implemented	Estimate of impact not available.						

PaM ID Nation. ID	Name Entity responsible	Objective GHG	Type of instrument	Start year	Status	Scenario Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	2055
227 V.2.B2	**Participating in international systems to reduce emissions from aviation**	Iceland to participate in international systems to reduce emissions from aviation										WEM
	Ministry of the Environment, Energy and Climate	CO_2	Economic Regulatory	2007 (ETS) 2021 (CORSIA)	Implemented	Estimate of impact not available.						
228 V.2.B3	**A phased requirement for a minimum share of sustainable aviation fuel**	Sustainable aviation fuel to increasingly replace fossil fuels until other more cost-effective solutions are available										WAM
	Ministry of the Environment, Energy and Climate	CO_2	Regulatory	2025	Planned	0	-83	-291	-510	-656	-1131	-1131
229 V.2.B4	**Guaranteed supply of sustainable aviation fuel**	Iceland to formulate a clear vision on future policy in fuel matters and access to sustainable aviation fuel.										Not included
	Ministry of the Environment, Energy and Climate	CO_2	Planning Research	2024	Implemented	Estimate of impact not available.						

Measures from Table 3.3 above will impact emissions from the Transport sector, including fishing related maritime activities, off-road vehicles and other machinery in Agriculture, as well as mobile machinery in manufacturing and construction. Summarised information about nature and goals of each of the 29 policies is provided in policy specific paragraphs below. Ten policies have been quantified. The quantification approaches and targets for these policies are described in the respective paragraphs. For more information on PaMs, see the Climate Action Plan (2024) at www.co2.is (in Icelandic).

3.4.1 Energy Transition for Mobile Machinery and Equipment (201)

This action is about supporting energy conversion of mobile machinery and equipment in civil engineering through the Climate and Energy Fund, when the necessary market conditions exist. The objective is to increase the amount of clean-energy equipment supported by the Climate and Energy Fund.

The Climate and Energy Fund supports the energy transition of mobile machinery and equipment. Technology for devices powered by renewable energy sources in construction is advancing, making it important for grants from the Climate and Energy Fund to reflect this market development. Infrastructure development and processes around construction sites should also be considered alongside the implementation of such an initiative.

3.4.2 Financial Support for Developing an Efficient Network of Clean-Energy Filling Stations (202)

This action envisages financial support for developing clean-energy filling stations for ecological vehicles throughout Iceland, in particular for complex and large-scale investments and connections to transport systems. The objective is to establish an efficient network of clean-energy filling stations throughout Iceland.

In recent years, grants have been provided through the Climate and Energy Fund for the development of fast-charging stations, as well as for the installation of charging stations at lodging facilities and public buildings, such as schools and swimming pools. Information on charging stations across the country has been published on the National Energy Authority's map viewer (https://map.is/os/), including details on locations, capacity, operators, and other nearby essential services.

3.4.3 Building Cycle and Pedestrian Paths (203), Incentives for Purchase of Bicycles (204) and Building a High-Quality Public-Transport System in Greater Reykjavik (205)

These three actions are quantified together. Information about the quantification target is provided in a paragraph following the description of the actions.

Building cycle and pedestrian paths (203). The state needs to support the building of cycle and pedestrian paths by providing funding, adapting the relevant regulatory framework, and formulating a strategy and action plan for active means of travel, including cycling and small vehicles. The objective is an extension of the pedestrian and cycle path networks.

Incentives for the purchase of bicycles (204). VAT needs to be abolished on all bicycles, electric bicycles, and electric scooters. These means of travel – alongside walking – have the lowest carbon footprint. Tax subsidies first entered into force on 1 January 2020. The goal for the Greater Reykjavík region is for walking and cycling to account for 30% of total travel by 2040.

Building a high-quality public-transport system in Greater Reykjavik (205). State and municipal authorities in Greater Reykjavik work on a high-quality public-transport system in accordance with the agreement reached on transport construction projects in Greater Reykjavik. The objective is increased use of public transport in Greater Reykjavik, with the introduction of a high-quality public-transport system that reduces use of private cars. The goal for the Greater Reykjavík region is for public transport to account for 12% of total travel by 2040.

The overall objective is to foster active or public transport-based means of travel, with the share of cycling and walking, in combination with the use of public transport in Greater Reykjavik reaching 28% in 2028 and 26% outside of Greater Reykjavík.

3.4.3.1 Quantification

The measures building cycle and pedestrian paths (203), incentives for the purchase of bicycles (204) and building a high-quality public-transport system in Greater Reykjavik (205) are quantified together. These measures are a part of the WEM projection scenario.

A team of researchers from the University of Iceland and Reykjavík University conducted an analysis of the effects of predefined measures in an action plan aimed at reducing emissions from road transport. To assess the impact of these measures, a dynamic systems model was developed to represent the factors contributing to greenhouse gas emissions from road transport and how the measures influence them.

Numerical assumptions regarding forecasts for the use of public transport and active travel modes were obtained from COWI (Transport Model for the Capital Region of Iceland – SLH by the Icelandic Road and Coastal Administration (IRCA, Vegagerðin)) and projections on driving from the energy forecast. Data on fleet composition, emissions from the public transport system in the capital area and plans for the electrification of public transport were sourced from the climate accounting records of Strætó (the national public transport service).

To estimate the impact of measures promoting active transport (walking and cycling) and the enhancement of public transport, it is assumed that such measures will reduce the demand for private car travel, thereby decreasing the number of kilometres driven. The relative reduction in driven kilometres was estimated based on data from COWI, and the total vehicle kilometres from the national energy forecast. The fleet composition and expected emissions per kilometre driven were derived from the model.

The result of the dynamic systems model was used as a basis to estimate the fuel usage within the Road Transport sector. In the energy forecast model, a 2.3% reduction in the average mileage of household and company passenger cars is assumed to achieve the reduction in CO_2 emissions in line with the impact assessment of the researchers' team. For both scenarios, the methodology for the calculation of the greenhouse gas emissions

from the fuel usage is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

Table 3.4 and Figure 3.2 show the quantified emission impacts and the difference between the scenarios. It can be seen that a blending requirement will drive emission reductions slightly in this sector.

Table 3.4. Quantified emission impact on Road Transport (1A3b) of the measures: Building cycle and pedestrian paths (203), incentives for the purchase of bicycles (204) and building a high-quality public-transport system in Greater Reykjavik (205) [kt CO_2e].

1A3b Road Transport	2025	2030	2035	2040	2045	2050	2055
Emissions without measure [kt CO_2e]	920	863	658	387	180	23.1	0.89
Emissions with measure [kt CO_2e]	916	855	651	383	178	22.8	0.89
Impact of measure [kt CO_2e]	-4.8	-8.3	-6.5	-4.2	-1.9	-0.3	0.0
Impact of measure [%]	-0.5%	-1.0%	-1.0%	-1.1%	-1.1%	-1.2%	0.0%

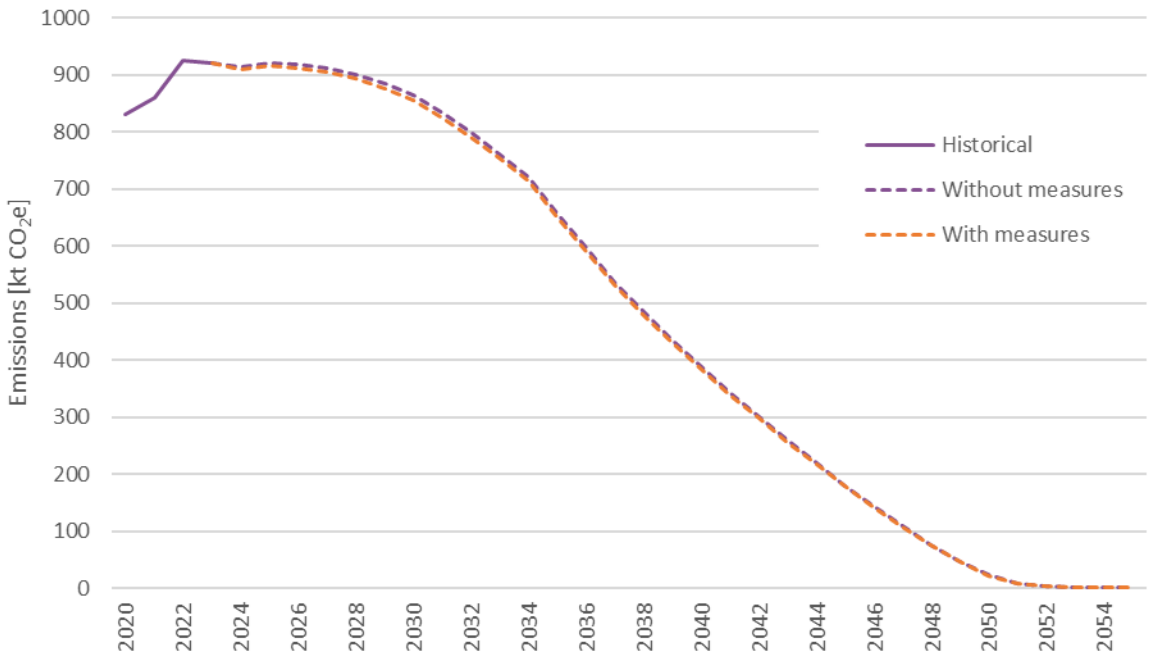

Figure 3.2. GHG emissions [kt CO_2e] from Road Transport (1A3b). Comparison between the emissions with and without the measures Building cycle and pedestrian paths (203), incentives for the purchase of bicycles (204) and building a high-quality public-transport system in Greater Reykjavik (205)

3.4.4 Service-Oriented Operation of Public Transport Enhancement Throughout Iceland (206)

This action is about the need for the state to support the operation of public-transport running on clean energy, by means of funding and an improved legal environment. The appropriate frequency needs to be ensured in a more comprehensive, efficient, and service-oriented route system throughout Iceland. The objective is to increase the use of

public transport, with its share, in combination with cycling and walking, in Greater Reykjavik reaching 28% in 2028 and 26% outside of Greater Reykjavík.

Public transport has been and will continue to be an important factor in reducing greenhouse gas emissions from transportation, promoting social equality, expanding access to employment, services, and education, and improving accessibility and equity for residents across the country. If more people use high-quality public transport, fewer people rely on private cars, which reduces the negative effects of traffic, airborne particles, greenhouse gas emissions, noise pollution, and traffic congestion. Studies also indicate that the introduction of high-quality public transport positively impacts road safety for all modes of travel.

A bill on public transport aims to establish a comprehensive framework that clarifies the division of responsibilities between the state and municipalities. This legislation seeks to create an environment that better supports and strengthens public transport, thereby promoting environmentally friendly travel habits. The bill plays a key role in reducing greenhouse gas emissions from transportation. Additionally, access to public transport must be ensured through diverse payment options.

Efforts are underway to revise subsidies for public transport in the capital region to accelerate the transition to clean-energy buses. This process is still in the preparation phase, but a significantly higher temporary subsidy is expected to speed up the transition.

3.4.5 Public Transport Running on Clean Energy between Greater Reykjavik and Keflavík (207)

This action is about formulating a plan and launching pilot projects for public transport running on clean energy between Greater Reykjavik and Keflavík Airport (KEF), taking account of passenger service needs and facilities. The objective is to reduce the number of journeys by car and reduce greenhouse-gas emissions from traffic between Greater Reykjavik and Keflavík Airport (Suðurnes region).

In the parliamentary resolution proposal for the 2024–2038 transportation plan, Action 4.6: Strengthening Public Transport Between the Capital Region and Keflavík Airport, states: *A plan will be developed for efficient and carbon-neutral public transport between the capital region and Keflavík Airport. An analysis will be conducted to assess service needs and passenger facilities, and timed and cost-evaluated proposals for improvements will be presented.*

3.4.6 Full Energy Transition of National Fleets and Transport Services by 2030 (208)

This action is about the need for the state to lead by example through the procurement of clean-energy vehicles and ecological public-transport services, with exemptions conforming to Icelandic Regulation No 1330/2023. The objective is to complete full energy transition of national fleets and transport services by 2030 (not exempted in Regulation No 1330/2023).

A regulation on public procurement of environmentally friendly and energy-efficient vehicles has been enacted: Icelandic Regulation 1330/2023. Requirements for the procurement of clean energy vehicles and environmentally friendly transport services will be implemented in stages to ensure that the state fleet runs on clean energy by 2030. The regulation mandates that public entities purchase environmentally friendly and energy-efficient vehicles.

3.4.7 Subsidies for the Purchase of Vehicles Running on Clean Energy from the Climate and Energy Fund (209)

This action is about granting subsidies for the purchase of vehicles running on clean energy that cost less than ISK 10 million from the Climate and Energy Fund. The support is planned to decrease gradually in line with technological and price developments in the market. The objective is to increase the share of newly registered vehicles running on clean energy, so that the total share of vehicles running on clean energy in the national fleet rises.

Since 2012, deliberate efforts have been made to increase the share of environmentally friendly vehicles in the country – with good success. Further incentives for purchasing clean energy vehicles will be granted but now based on a subsidy scheme instead of VAT refunds. This shall, among other things, address concerns about a just transition, to help ensure that older, high-emission vehicles are replaced more quickly, and shall guarantee that state support does not exceed necessary quantum – a key point when many measures with the same goal compete for limited funds.

3.4.7.1 Quantification

The measure subsidies for the purchase of vehicles running on clean energy from the Climate and Energy Fund (209) is a part of the WEM projection scenario.

A team of researchers from the University of Iceland and Reykjavík University conducted an analysis of the effects of predefined measures in an action plan aimed at reducing emissions from road transport. To assess the impact of these measures, a dynamic systems model was developed to represent the factors contributing to greenhouse gas emissions from road transport and how the measures influence them.

Assumptions about the price elasticity of demand for vehicles are sourced from the Institute of Economic Studies at the University of Iceland, based on a Norwegian study showing that demand increases by 0.4% when car prices decrease by 1%. To assess the overall impact of the measure, calculations assume that financial support does not stop once a predefined funding amount is reached and that the measure applies to all clean-energy vehicles. Additionally, no ban on the registration of fossil-fuel-powered vehicles is assumed when evaluating the effects of this measure.

The subsidy lowers the price of clean-energy vehicles, which increases demand according to price elasticity, thereby raising the share of clean-energy vehicles in the total vehicle fleet. The dynamic systems model is run for two scenarios: one without the subsidy and one with it, and the number of new clean-energy vehicle registrations is compared to

assess the impact of the measure. The price elasticity of vehicle demand is used to analyse the effect of the subsidy on the registration of clean-energy vehicles.

The result of the dynamic systems model was used as a basis to estimate the fuel usage within the Road Transport sector. In the energy forecast model, the first registration ratio of vehicles running on other than fossil fuels was adjusted to achieve the reduction in CO_2 emissions in line with the impact assessment of the researchers' team. For both scenarios, the methodology for the calculation of the greenhouse gas emissions from the fuel usage is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

Table 3.5 and Figure 3.3 show the quantified emission impacts and the difference between the scenarios. It can be seen that subsidies for the purchase of vehicles running on clean energy will drive emission reductions in this sector.

Table 3.5. Quantified emission impact on Road Transport (1A3b) of the measure: Subsidies for the purchase of vehicles running on clean energy from the Climate and Energy Fund (209) [kt CO_2e].

1A3b Road Transport	2025	2030	2035	2040	2045	2050	2055
Emissions without measure [kt CO_2e]	920	863	658	387	180	23.1	0.89
Emissions with measure [kt CO_2e]	918	849	637	368	165	16.8	0.78
Impact of measure [kt CO_2e]	-2.5	-14.3	-21.0	-19.5	-14.8	-6.3	-0.1
Impact of measure [%]	-0.3%	-1.7%	-3.2%	-5.0%	-8.2%	-27%	-13%

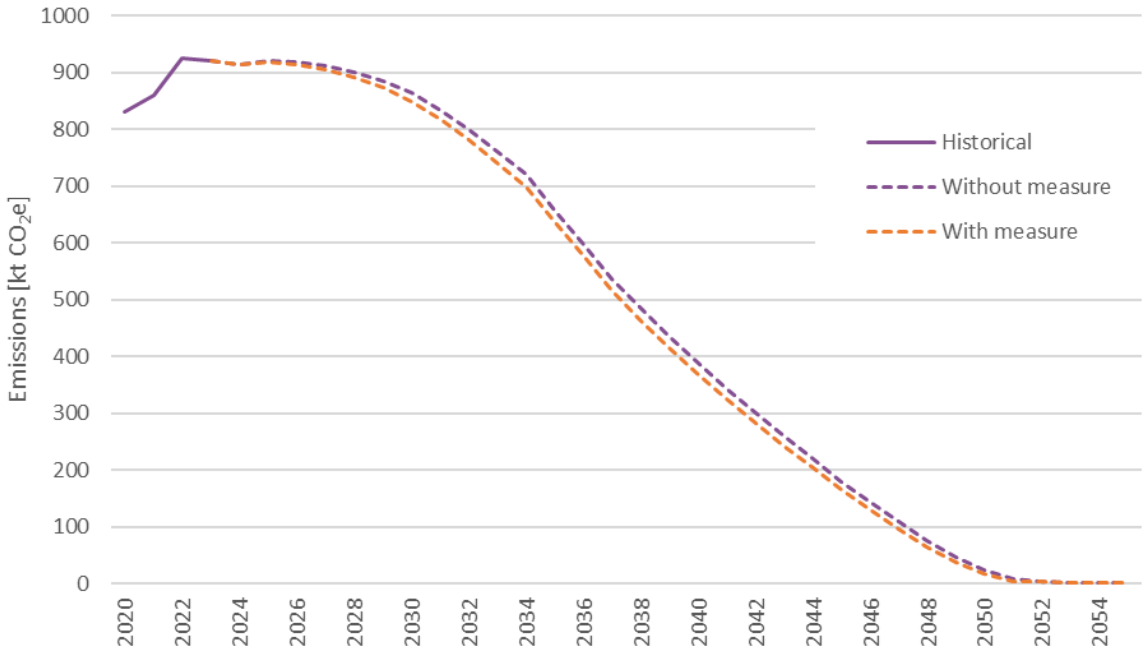

Figure 3.3. GHG emissions [kt CO_2e] from Road Transport (1A3b). Comparison between the emissions with and without the measure Subsidies for the purchase of vehicles running on clean energy from the Climate and Energy Fund (209).

3.4.8 Public-Transport Vehicles Running on Clean Energy (210)

This action targets the provision of subsidies for the purchase of public-transport vehicles running on clean energy from the Climate and Energy Fund following a call for tender. Group-transport vehicles must be newly registered under vehicle category M2 or M3. The objective is to increase the share of newly registered vehicles running on clean energy in public transport, so that the overall share of vehicles running on clean energy in the fleet of group-transport vehicles rises.

Subsidies from the Climate and Energy Fund will be announced, aimed at increasing the proportion of clean energy vehicles in the fleet of group passenger vehicles, with the first subsidies having been announced in 2024.

3.4.9 Progressively More Stringent Requirement for the Share of Renewable Energy Sources in Land Transport (211)

This action is about progressively increasing the required minimum share of energy from renewable sources that fuel vendors/distributors have to sell for land transport. The objective is to have a higher share of renewable energy sources in land transport.

The requirement imposed on fuel retailers under Icelandic Act no. 40/2013 on renewable fuels in domestic transport will be increased in steps until it reaches at least 20% by 2030. A stepwise approach and timely communication of these changes will ensure market predictability. Retailers can meet this requirement in various ways, for example by selling methane, electricity, hydrogen, or biofuel blends. The requirement has remained unchanged at 5% since 2015, even though a 10% blend was offered at most filling stations in the country in 2022.

3.4.9.1 Quantification

The measure progressively more stringent requirement for the share of renewable energy sources in land transport (211) is a part of the WAM projection scenario.

The quantification of the measure assumes phasing blending requirements for road transport. In order to reach 20% share of renewable fuels in road transport in 2030, a 15% biofuel blend is assumed. The blending requirement starts at 8% in 2024 and increases linearly in steps up to 15% in 2030. A comparison is made between the emissions for road transport assuming steady 8% blending and the emissions based on the increasing blending requirements. The calculation and results are presented below.

For both scenarios, the methodology for the calculation of the greenhouse gas emissions from the fuel usage is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

Table 3.6 and Figure 3.4 show the quantified emission impacts and the difference between the scenarios. It can be seen that more stringent requirement for the share of renewable energy sources in land transport will drive further emission reductions in this sector.

Table 3.6. Quantified emission impact on Road Transport (1A3b) of the measure: Progressively more stringent requirement for the share of renewable energy sources in land transport (211) [kt CO_2e].

1A3b Road Transport	2025	2030	2035	2040	2045	2050	2055
Emissions without measure [kt CO_2e]	913	841	631	364	163	16.6	0.78
Emissions with measure [kt CO_2e]	902	777	583	336	151	15.3	0.72
Impact of measure [kt CO_2e]	-10.9	-63.7	-47.8	-27.6	-12.4	-1.3	-0.1
Impact of measure [%]	-1.2%	-7.6%	-7.6%	-7.6%	-7.6%	-7.6%	-7.3%

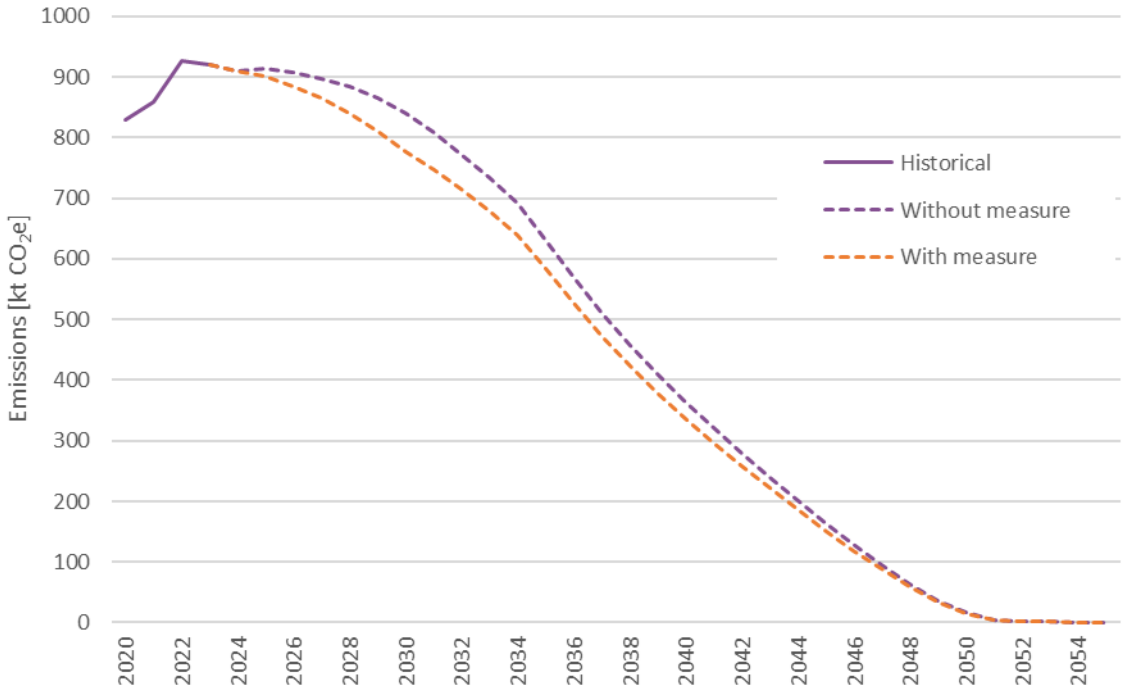

Figure 3.4. GHG emissions [kt CO_2e] from Road Transport (1A3b). Comparison between the emissions with and without the measure Progressively more stringent requirement for the share of renewable energy sources in land transport (211).

3.4.10 Changes to How Vehicle Benefits for Vehicles Running on Clean Energy are Calculated (212)

Under the current regulations governing vehicle in-kind benefits, a clear distinction is made between vehicles powered by fossil fuels and vehicles powered by electricity, hydrogen, or methane. As of 2024, a revision of tax assessment rules steepened this differentiation, making electric, hydrogen, and methane powered vehicles more tax efficient. The objective is to increase the fiscal advantage of vehicles powered by electricity, hydrogen, or methane over vehicles powered by fossil fuels.

The "Vehicle Benefits Calculation" section in the tax assessment rules for yearly income, starting from 2024, creates a clearer distinction between vehicles powered by fossil fuels and those powered by electricity, hydrogen, or methane. According to this revised taxation scheme, the in-kind benefits of using fossil fuelled vehicles will remain at 28% p.a. from the original purchase price with a 6% deduction if the employee covers the operating costs, while a reduction of taxable benefits from previously 25% to 20%, with a 3% deduction, is foreseen for vehicles powered by electricity, hydrogen, or methane. The

adapted rules, moreover, outline what constitutes operating costs in relation to vehicle use.

3.4.11 Phasing Out Petrol and Diesel Vehicles in Iceland (213)

In the previous action plan, the principle was that new registrations of petrol and diesel vehicles in Iceland would be banned in 2030. However, Iceland is now considering bringing this timeline forward by 2 years, together with a proposal to extend the registration ban to also cover vehicles using mixed energy sources (i.e. both clean-energy sources and fossil fuels). The objective is to achieve a greater share of vehicles running on clean energy in the total vehicle fleet of each relevant vehicle category.

This measure concerns vehicles falling under the vehicle classes M1 and N1. The supply of clean energy vehicles – as well as other environmentally friendly vehicles – has increased considerably in a short period. The measure envisages a general rule that, however, will be subject to technological development, and therefore some exceptions are to be expected, for example based on regional considerations or for emergency vehicles. It should be emphasised that the measure applies solely to new registrations, regardless of whether these are new vehicles or used vehicles imported into the country.

3.4.11.1 Quantification

The measure phasing out petrol and diesel vehicles in Iceland (213) is a part of the WAM projection scenario.

The quantification of the measure assumes the registration ratio of new vehicles of the vehicle classes M1 and N1 running on other than fossil fuels to be 100% from the year 2028 in the energy forecast model. A comparison is made between the emissions for road transport where the first registration ratio of vehicles running on other than fossil fuels reaches 100% in 2035, compared to the scenario where the first registration ratio of vehicles running on other than fossil fuels reaches 100% in 2028. The calculation and results are presented below.

For both scenarios, the methodology for the calculation of the greenhouse gas emissions from the fuel usage is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

Table 3.7 and Figure 3.5 show the quantified emission impacts and the difference between the scenarios. It can be seen that phasing out petrol and diesel vehicles in Iceland by increasing the share of newly registered vehicle that don't use fossil fuels will drive further emission reductions in this sector.

Table 3.7. Quantified emission impact on Road Transport (1A3b) of the measure: Phasing out petrol and diesel vehicles in Iceland (213) [kt CO_2e].

1A3b Road Transport	2025	2030	2035	2040	2045	2050	2055
Emissions without measure [kt CO_2e]	913.16	840.91	630.67	363.85	163.43	16.58	0.78
Emissions with measure [kt CO_2e]	913.16	732.37	490.11	256.50	81.80	3.12	0.49
Impact of measure [kt CO_2e]	0	-108.5	-140.6	-107.3	-81.6	-13.5	-0.3
Impact of measure [%]	0%	-13%	-22%	-30%	-50%	-81%	-37%

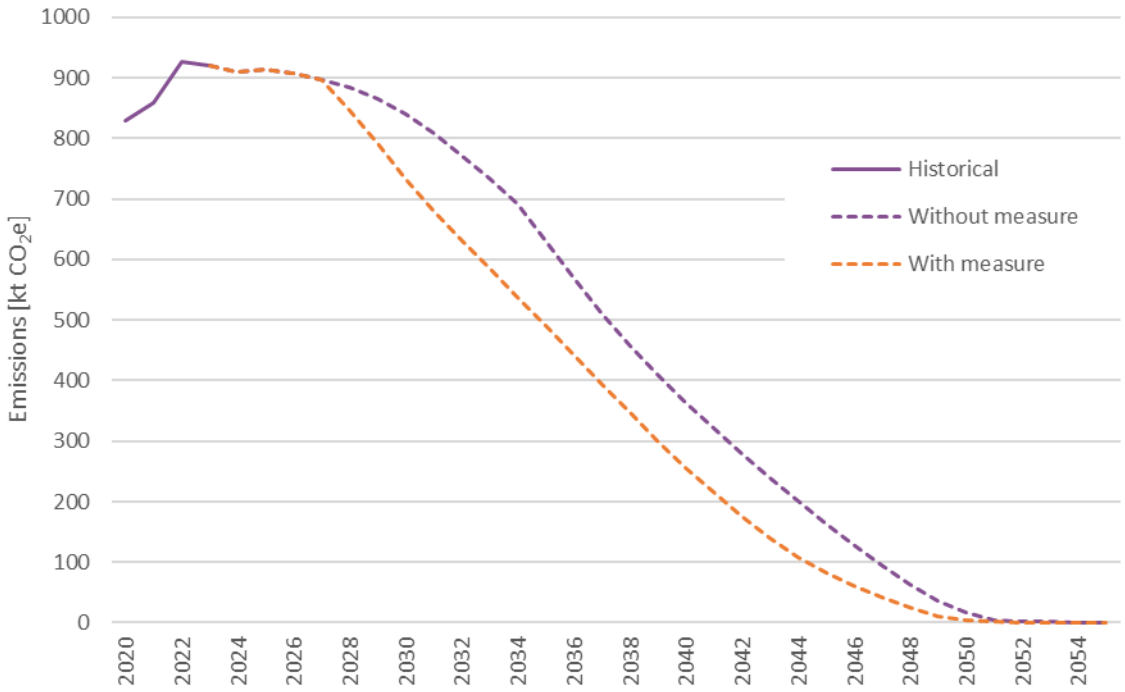

Figure 3.5. GHG emissions [kt CO_2e] from Road Transport (1A3b). Comparison between the emissions with and without the measure Phasing out petrol and diesel vehicles in Iceland (213).

3.4.12 Banning New Registrations of Group and Freight Vehicles Powered by Fossil Fuels in 2035 (214)

This action aims at banning new registrations of heavy vehicles powered by fossil fuels in 2035, exploiting the significant opportunities for energy transition in buses and freight vehicles. The ban will be phased in in line with technological and market developments. The objective is to achieve a greater share of vehicles running on clean energy in the total vehicle fleet of each relevant vehicle category.

The ban will be introduced in stages in line with technological and market developments of the vehicles. In the implementation of this measure, the timeline for specific vehicle categories, the introduction process, and other aspects will be considered in comparison with the approach of countries with similar measures. This measure concerns vehicles in vehicle categories: M2, M3, N2, and N3.

3.4.12.1 Quantification

The measure banning new registrations of group and freight vehicles powered by fossil fuels in 2035 (214) is a part of the WAM projection scenario.

The quantification of the measure assumes the registration ratio of new heavy-duty trucks and buses running on other than fossil fuels to be 100% from the year 2035 in the energy forecast model. A comparison is made between the emissions for road transport where the first registration ratio of heavy duty trucks and buses running on other than fossil fuels reaches 100% in 2050, compared to the scenario where the first registration ratio of heavy duty trucks and buses running on other than fossil fuels reaches 100% in 2035. The calculation and results are presented below.

For both scenarios, the methodology for the calculation of the greenhouse gas emissions from the fuel usage is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

Table 3.8 and Figure 3.6 show the quantified emission impacts and the difference between the scenarios. It can be seen that banning new registrations of group and freight vehicles powered by fossil fuels in 2035 in Iceland will drive further emission reductions in this sector.

Table 3.8. Quantified emission impact on Road Transport (1A3b) of the measure: Banning new registrations of group and freight vehicles powered by fossil fuels in 2035 (214) [kt CO_2e].

1A3b Road Transport	2025	2030	2035	2040	2045	2050	2055
Emissions without measure [kt CO_2e]	913	841	631	364	163	16.6	0.78
Emissions with measure [kt CO_2e]	913	841	623	337	132	15.0	0.75
Impact of measure [kt CO_2e]	0	0	-7.8	-27	-31	-1.5	-0.03
Impact of measure [%]	0%	0%	-1.2%	-7.4%	-19%	-9.3%	-4.0%

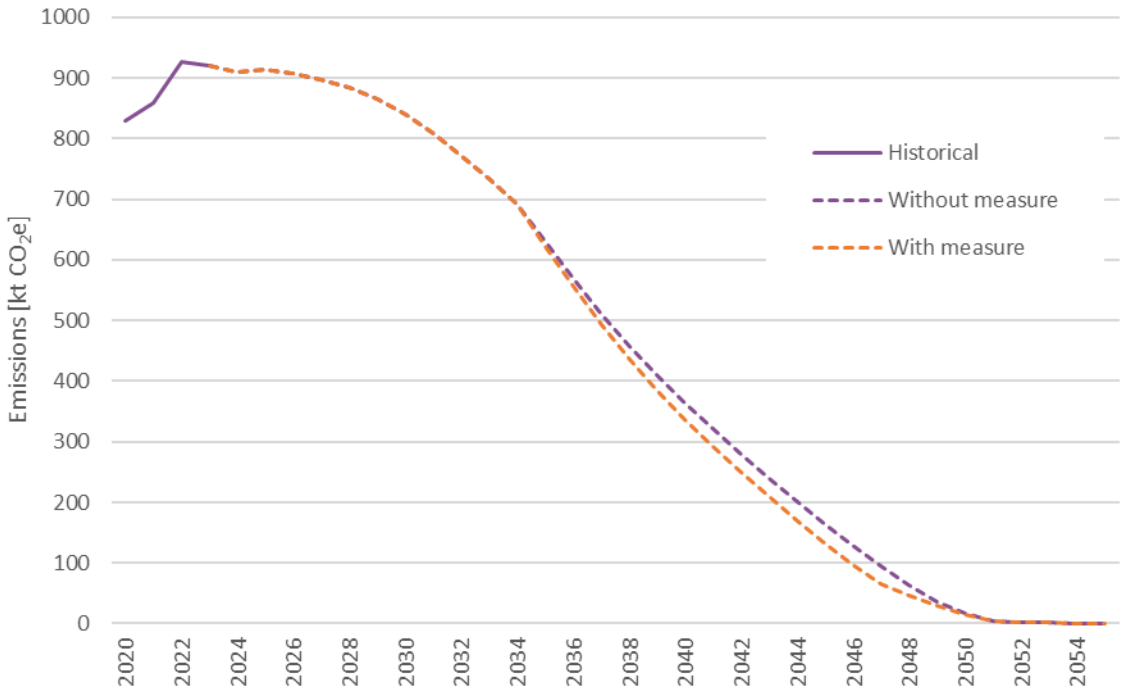

Figure 3.6. GHG emissions [kt CO_2e] from Road Transport (1A3b). Comparison between the emissions with and without the measure.

3.4.13 Installing Land Connections in Ports (215)

This action concerns the installation of high-voltage connections in larger ports for freight, tourism, and fisheries vessels, based on priorities and construction plans, in addition to the existing low-voltage connections in home ports. The objective is to make land connections available to all docked vessels.

The aim is to identify cost-effective methods to enhance shore power connections for vessels in ports by installing high-voltage systems. Until now, port electrification has focused on installing low-voltage infrastructure that most fishing vessels and other smaller ships can use while docked. However, there are insufficient connections available for vessels with power requirements exceeding 500 kW. It is necessary to explore the possibilities for installing high-voltage equipment in ports based on potential benefits and costs.

3.4.14 Prioritising and Developing Electrical Charging Infrastructure in Ports (216)

This action analyses cost-effective ways of setting up electric charging infrastructure for electric ships in ports. A priority order of ports will be developed along with an action plan for construction projects in ports. The objective is to increase the number of ports with electrical charging infrastructure.

The results of the assessment process shall outline the current situation, the desired state by 2030, the need for infrastructure development at each location, cost assessments, opportunities for reducing greenhouse gas emissions, integration with other modes of transport and logistics for optimal infrastructure utilisation, and a proposal for prioritisation.

3.4.15 Analysing the Benefits of the Regulation Regarding Additional Fishing Allowances for Electrified Inshore Fishing Vessels (217)

This action is about assessing the benefits of recent changes to the regulatory framework regarding additional fishing allowances for electrified inshore fishing vessels that can contribute to faster energy transition in inshore fishing, and updating the regulation according to the assessment results. The objective to increase the share of electric vessels in inshore fishing.

With regulatory changes regarding additional catch quotas for electrified coastal fishing boats, the goal was to accelerate the energy transition in coastal fisheries. Increased catch quotas for electrically powered vessels can encourage the shift to clean energy in fisheries and support the government's objectives for Iceland to achieve carbon neutrality and full energy transition no later than 2040.

3.4.16 Binding Agreement between Individual Companies in the Fishing Industry and the Government on Reducing Fuel Consumption (218)

Purpose of this action is to establish binding agreements between the government and individual companies in the fishing industry that aim at fostering the cooperation with respect to climate measures in the fishing industry. The government shall encourage companies in the fishing industry to further reduce fuel consumption in their operations with the goal to lower fuel consumption by fishing vessels by 50% by 2030, as compared to 2005.

3.4.17 Energy Transition for State-owned Ferries (219)

Efforts will be made towards energy transition for state-owned ferries. By 2030, a new Hrísey ferry and a new Grímsey ferry, powered by renewable energy sources, will be designed, built, and put into operation. The objective is to purchase new state-owned ferries run on renewable energy sources in order to reduce greenhouse-gas emissions from ferries.

The energy transition in ferries has begun with the electrification of the Vestmannaeyjar ferry, Herjólfur. Efforts will continue to transition ferries to cleaner energy sources, as their next modernisation cycle is imminent.

3.4.17.1 Quantification

The measure energy transition for state-owned ferries (219) is a part of the WEM projection scenario.

The quantification of this measure assumes that the Hrísey and Grímsey ferries will be powered by renewable energy sources from 2030 and 2031, respectively. Emissions from domestic navigation are compared under two scenarios: one without the energy transition of the two ferries and another where they transition to renewable energy. The energy consumption of other ferries remains unchanged between scenarios. The calculations and results are presented below.

For both scenarios, the methodology for the calculation of the greenhouse gas emissions from the fuel use is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

Table 3.9 and Figure 3.7 show the quantified emission impacts and the difference between the scenarios. It can be seen that energy transition for state-owned ferries in Iceland will drive further emission reductions in this sector.

Table 3.9. Quantified emission impact on Domestic Navigation (1A3d) of the measure: Energy transition for state-owned ferries (219) [kt CO_2e].

Domestic Navigation (1A3d)	2025	2030	2035	2040	2045	2050	2055
Domestic navigation emissions without measure [kt CO_2e]	26.9	26.5	15.8	13.2	10.7	8.91	7.90
Domestic navigation emissions with measure [kt CO_2e]	26.9	25.9	13.2	10.6	8.1	6.32	5.31
Impact of measure [kt CO_2e]	0	-0.59	-2.59	-2.59	-2.59	-2.59	-2.59
Impact of measure [%]	0%	-2.2%	-16%	-20%	-24%	-29%	-33%

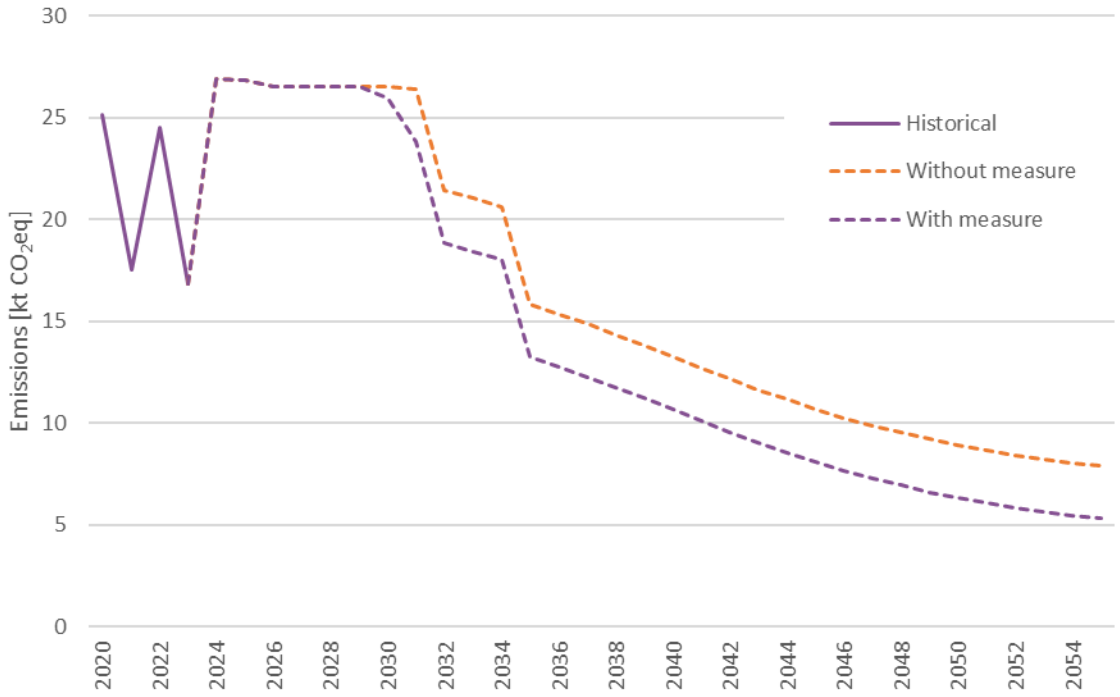

Figure 3.7. GHG emissions [kt CO_2e] from Domestic Navigation (1A3d). Comparison between the emissions with and without the measure Energy transition for state-owned ferries (219).

3.4.18 Energy Transition for the State Fleet (220)

This action is about the systematic reduction of fossil fuel use in state-owned ships. Fossil fuel will be replaced by renewable energy sources, with the objective of achieving a minimum of 10% of energy from renewable sources used in the overall state fleet.

3.4.19 Energy Transition in Marine-related Activities (221)

Energy transition in maritime activities needs to be supported, either via the Climate and Energy Fund or by supporting applications to international funds for sustainable solutions. The objective is a higher percentage of ships running on clean energy in the country's total ship fleet.

The energy transition in maritime-related activities is supported through the Climate and Energy Fund in line with the needs and technological development of relevant solutions. Initially, smaller vessels are prioritised, as clean energy options are already available on the market for such boats and engines. For larger vessels, potential applications for international funding programs are considered, particularly those supporting innovation and the development of sustainable solutions, both in the conversion of the existing fleet and in the development of new ship engines.

3.4.20 Minimum Share of Renewable Energy in Fishing Vessels and Domestic Navigation (222)

This action shall impose a phased requirement on fuel sellers for a gradually increasing minimum share of renewable energy sources sold to fishing vessels and domestic

navigation, starting at 6% in 2028. The objective is to increase the share of renewable energy in fishing vessels and domestic navigation, reaching 10% in 2030.

A requirement should be placed on fuel suppliers to ensure a progressively increasing minimum share of renewable energy sources in fuel sold for ships. It is essential to establish a phased approach to provide stakeholders with predictability, ensuring that stricter requirements are announced in advance. Initially, it is proposed that a mandatory 6% minimum renewable energy share be imposed on fuel suppliers by 2028 for fuel sold to fishing vessels and domestic shipping. If consensus is reached, this requirement may be increased to 10%. Consideration must be given to ensuring the access and availability of sustainable fuels, to how biofuels are sourced, and whether cost differences need to be covered.

3.4.20.1 Quantification

The measure minimum share of renewable energy in fishing vessels and domestic navigation (222) is a part of the WAM projection scenario.

The quantification of the measure assumes a step increase in minimum share of renewable energy in fishing vessels and domestic navigation. In the energy forecast model, the minimum share of biofuel blending in fossil fuels is assumed to be 6% in the year 2028 and increase in steps up to 10% in the year 2030. A comparison is made between the emissions in the WEM scenario for fishing and domestic navigation assuming no biofuel blending and the WAM scenario assuming biofuel blending so that the use of renewable fuels reaches 6% in 2028 and 10% in 2030, therefore decreasing the fossil fuel amount needed. The calculation and results are presented below.

For both scenarios, the methodology for the calculation of the greenhouse gas emissions from the fuel usage is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

Table 3.10 and Figure 3.8 show the quantified emission impacts and the difference between the scenarios. It can be seen that introducing a minimum share of renewable energy in fishing vessels and domestic navigation in Iceland will drive further emission reductions in this sector.

Table 3.10. Quantified emission impact on Fishing (1A4ciii) and Domestic Navigation (1A3d) of the measure: Minimum share of renewable energy in fishing vessels and domestic navigation (222) [kt CO_2e].

Fishing (1A4ciii) and Domestic Navigation (1A3d)	2025	2030	2035	2040	2045	2050	2055
Fishing emissions without measure [kt CO_2e]	497	466	434	352	249	157	67.1
Fishing emissions with measure [kt CO_2e]	497	420	391	317	224	141	60.5
Impact of measure [kt CO_2e]	0	-46	-43	-35	-25	-16	-6.6
Impact of measure [%]	0%	-10%	-10%	-10%	-10%	-10%	-10%
Domestic navigation emissions without measure [kt CO_2e]	26.9	23.9	13.2	10.6	8.10	6.32	5.31
Domestic navigation emissions with measure [kt CO_2e]	26.9	21.6	11.9	9.6	7.29	5.69	4.78
Impact of measure [kt CO_2e]	0	-2.4	-1.3	-1.1	-0.8	-0.6	-0.5
Impact of measure [%]	0%	-10%	-10%	-10%	-10%	-10%	-10%
Total emissions without measure [kt CO_2e]	**524**	**490**	**447**	**363**	**257**	**163**	**72.4**
Total emissions with measure [kt CO_2e]	**524**	**441**	**403**	**327**	**231**	**147**	**65.3**
Impact of measure [kt CO_2e]	**0**	**-49**	**-44**	**-36**	**-26**	**-16**	**-7.1**
Impact of measure [%]	**0%**	**-10%**	**-10%**	**-10%**	**-10%**	**-10%**	**-10%**

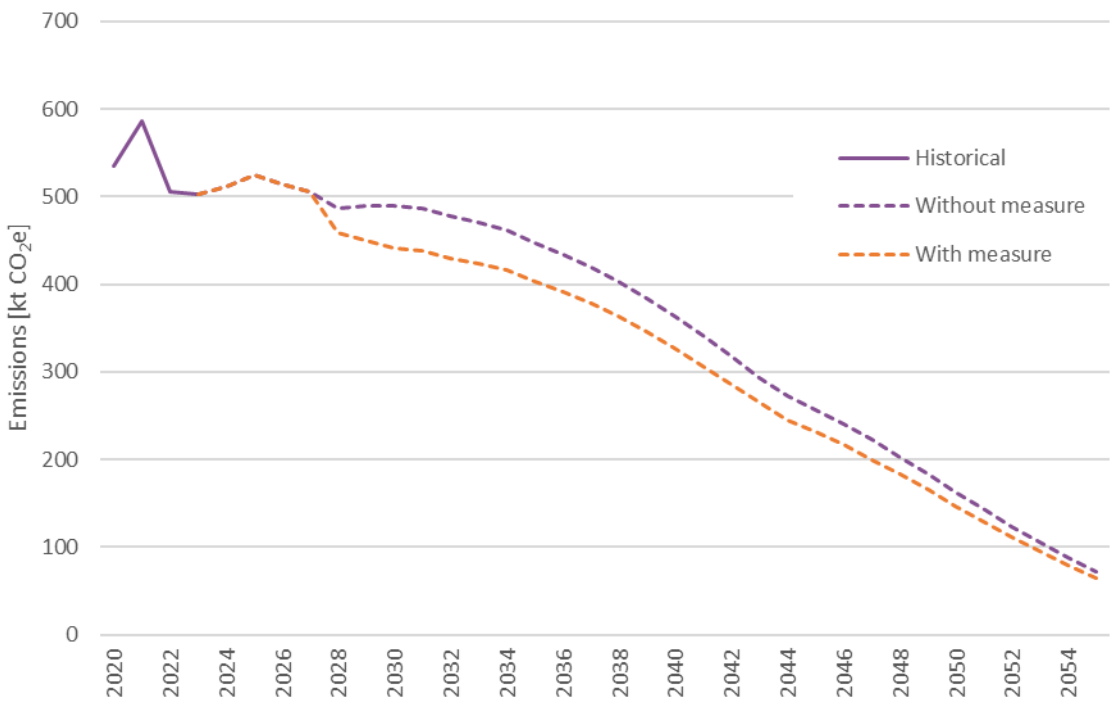

Figure 3.8. GHG emissions [kt CO_2e] from Fishing (1A4ciii) and Domestic Navigation (1A3d). Comparison between the emissions with and without the measure Minimum share of renewable energy in fishing vessels and domestic navigation (222).

3.4.21 Introducing ETS for Maritime Transport (223)

Emissions from maritime transport involving larger ships (over 5,000 gross tonnes) will gradually be covered by the ETS system. The ETS extension to maritime transport entered into force on 1 January 2024. Shipping companies will need to settle their emissions of the preceding year partially in 2025 and 2026, and then fully in 2027. The objective is to fully implement the ETS system for maritime transport.

The ETS system is a key factor in achieving emission reductions, as approximately 40% of Iceland's greenhouse gas emissions fall under this system. Maritime transport emissions will be gradually included in the ETS, requiring cargo and passenger ships of 5,000 gross tons or more to take account of their emissions starting January 1, 2024, with phased compliance obligations. Ships must cover 40% of their annual emissions by allowances in 2024, 70% in 2025 and 100% in 2026. Full emissions accounting is required for voyages within the EEA and in ports, while 50% of emissions from trips entering or leaving the EEA must also be accounted for.

3.4.22 Developing Alternate Airports (224)

Alternate airports for international flights will be developed, reducing the distance and therefore the amount of fuel an aircraft needs to reach the nearest alternate airport. The objective is to improve infrastructure and services at alternative Icelandic airports and to increase their capacity to handle international flights with the aim to reduce the amount of extra fuel that needs to be carried, resulting in more effective fuel utilisation and increased flight efficiency.

Aircraft carry additional fossil fuel to reach an alternative destination in case landing at the planned destination is not possible. The increased amount of fossil fuel results in additional weight, which leads to higher emissions per flight segment. Therefore, alternative Icelandic airports will be strengthened to be able to handle international flights and to serve as backups in case planes cannot land at their intended destinations.

3.4.23 Implementing More Energy-efficient Flight Procedures (225)

Further efforts will be made to save energy in passenger flights with the introduction of 'free flight' and energy-saving procedures for departures and arrivals at airports owned by Isavia. The objective is to maximise energy efficiency and minimise greenhouse-gas emissions during approach and departure procedures.

By utilizing new technologies, it has become possible to reduce the separation between aircraft, which allows planes to fly at more fuel-efficient altitudes, resulting in lower CO_2 emissions. Additionally, Isavia ANS (Air Navigation Services), providing air navigation services within the Reykjavík Control Area and at Icelandic airports, will continue to focus on maximizing the fuel efficiency of aircraft during departure and arrival procedures in line with the guidelines provided by the European Union Aviation Safety Agency (EASA), including the implementation of Continuous Descent/Climb Operations (CDO/CCO) procedures for all flights arriving and departing from Keflavík Airport (KEF). Additionally, all arrival and departure routes will be reviewed in terms of CO_2 emissions. There will be a

strong focus on noise abatement with increased consideration of emissions and fuel consumption in departure routes and when selecting active runways.

3.4.24 Better Take-off and Landing Traffic Management (226)

Isavia, as operator of Keflavík airport, will introduce airport collaborative decision-making (A-CDM) and coordinated arrival-departure management (CADM) at Keflavík International Airport. The objective is to improve management and decision-making for arriving and departing aircraft, thus making more efficient use of aviation fuel and reducing CO_2 emissions.

3.4.25 Participating in International Systems to Reduce Emissions from Aviation (227)

Continued participating of Iceland in international systems to reduce greenhouse-gas emissions from aviation (ETS and CORSIA) and updating the regulatory framework as needed.

In addition to the EU Emissions Trading System (ETS), Iceland is now participating in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), an international system developed by the International Civil Aviation Organization (ICAO) for carbon offsetting and reduction in international aviation. The goal of CORSIA is to achieve carbon-neutral growth in international aviation starting from 2020, through carbon offsetting and reducing carbon dioxide emissions via specific project certifications. CORSIA applies to air operators that emit more than 10,000 tonnes of carbon dioxide from international flights using aircraft with a maximum take-off mass of over 5,700 kg.

The CORSIA system is implemented in Iceland through the EU's ETS, as outlined in the Icelandic act no. 96/2023 regarding the European Union Emissions Trading System. Several EU regulations concerning the monitoring obligations of air carriers in international flights under the CORSIA framework have already been integrated into Icelandic law.

3.4.26 A Phased Requirement for a Minimum Share of Sustainable Aviation Fuel (228)

The phased EU requirement for a gradually increasing minimum share of sustainable aviation fuel needs to be implemented, mandating 2% in 2025, 6% in 2030, and up to 70% in 2050. The objective is to progressively replace fossil fuels with sustainable aviation fuel until other more cost-effective solutions are available.

The ReFuelEU Aviation regulation (EU Regulation 2023/2405) requires a minimum percentage of sustainable aviation fuel (SAF) in aviation fuel, with the percentage increasing every five years until 2050. While SAF is not entirely emission-free, it recycles carbon from other processes such as biological sources or emissions from industrial processes. Furthermore, starting in 2030, there will be a requirement that a certain ratio of SAF must be synthetic sustainable aviation fuel.

The aim of this regulation is to increase the production and uptake of sustainable aviation fuel in Europe and ensure its availability, making the phase-out of fossil fuels in aviation feasible. It will be the responsibility of fuel suppliers to provide sustainable aviation fuel, but according to the flexibility mechanisms, they will not be required to distribute it equally across all airports within the EU and EEA.

3.4.26.1 Quantification

The measure a phased requirement for a minimum share of sustainable aviation fuel (228) is a part of the WAM projection scenario.

The quantification of the measure assumes 2% of fuel in aviation to be sustainable aviation fuel (SAF) in the year 2026 increasing in steps up to 70% in the year 2050 in accordance with the ReFuelEU Aviation regulation. A comparison is made between the emissions in the WEM scenario with no SAF and the emissions based on the SAF ratio and therefore decreasing the amount of fossil fuel. The calculation and results are presented below. The estimated impact of the measure is split between international and domestic aviation since emissions from domestic aviation is included in national totals whereas emissions from international aviation are not.

For both scenarios, the methodology for the calculation of the greenhouse gas emissions from the fuel usage is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

International aviation

Table 3.11 and Figure 3.9 show the quantified emission impacts and the difference between the scenarios for international aviation (not included in national totals). It can be seen that a requirement for a minimum share of sustainable aviation fuel Iceland will substantially drive emission reductions in this sector.

Table 3.11. Quantified emission impact on International Aviation (1D1a) of the measure: A phased requirement for a minimum share of sustainable aviation fuel (228) [kt CO_2e].

1D1a International Aviation	2025	2030	2035	2040	2045	2050	2055
Emissions without measure [kt CO_2e]	1042	1370	1441	1495	1568	1625	1626
Emissions with measure [kt CO_2e]	1042	1288	1155	991	914	495	495
Impact of measure [kt CO_2e]	0	-81.6	-286	-505	-654	-1130	-1131
Impact of measure [%]	0%	-6.0%	-20%	-34%	-42%	-70%	-70%

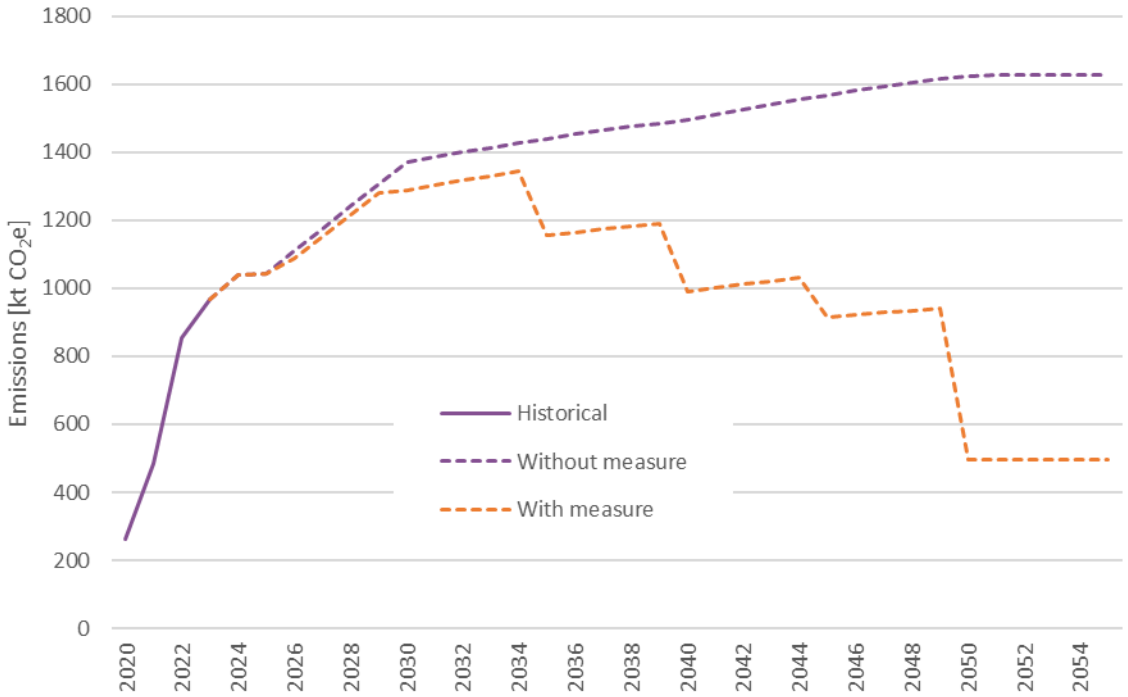

Figure 3.9. GHG emissions [kt CO_2e] from International Aviation (1D1a). Comparison between the emissions with and without the measure A phased requirement for a minimum share of sustainable aviation fuel (228).

Domestic aviation

Table 3.12 and Figure 3.10 show quantified emission impacts and the difference between the scenarios for domestic aviation. It can be seen that a phased requirement for a minimum share of sustainable aviation fuel Iceland will drive further emission reductions in this sector. Emission reductions that are observed in the scenario without measure 228 are due to electrification of the aircraft fleet in domestic aviation.

Table 3.12. Quantified emission impact on Domestic Aviation (1A3a) of measure about a phased requirement for a minimum share of sustainable aviation fuel (228) [kt CO_2e].

1A3a Domestic Aviation	2025	2030	2035	2040	2045	2050	2055
Emissions without measure [kt CO_2e]	26.6	28.6	27.1	16.4	4.41	0.76	0.12
Emissions with measure [kt CO_2e]	26.6	26.9	21.9	11.0	2.62	0.24	0.04
Impact of measure [kt CO_2e]	0	-1.7	-5.2	-5.4	-1.80	-0.51	-0.08
Impact of measure [%]	0%	-5.8%	-19%	-33%	-41%	-68%	-67%

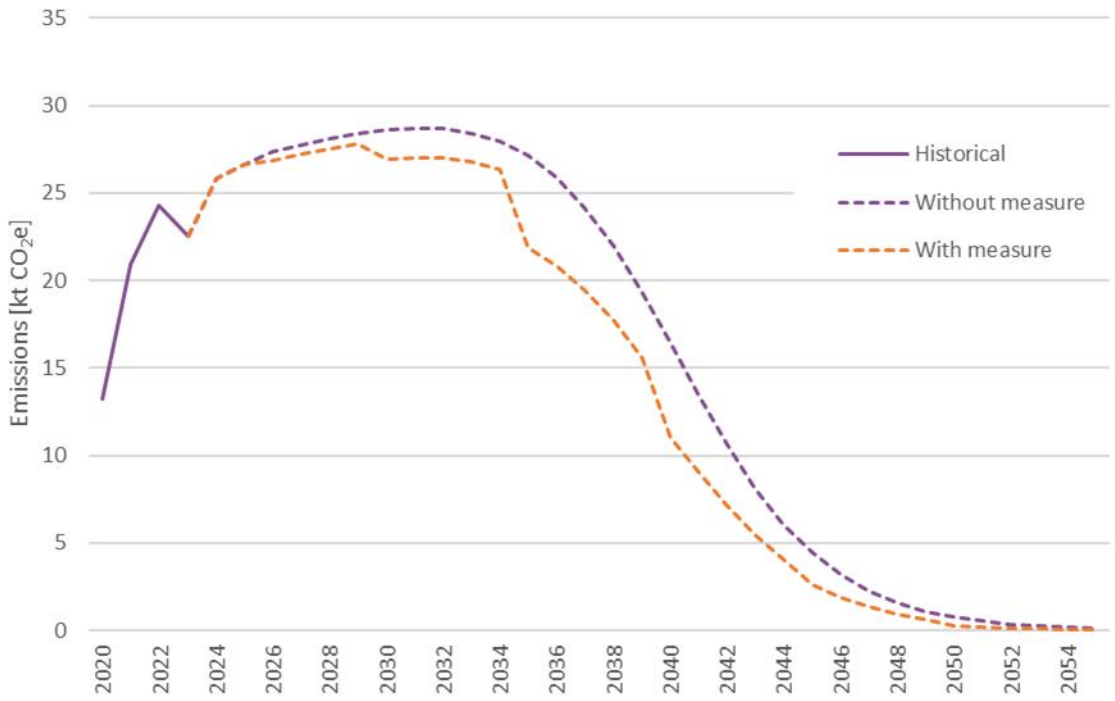

Figure 3.10. GHG emissions [kt CO_2e] from Domestic Aviation (1A3a). Comparison between the emissions with and without the measure about a phased requirement for a minimum share of sustainable aviation fuel (228).

3.4.27 Guaranteed Supply of Sustainable Aviation Fuel (229)

A working group will be set up to define and evaluate ways to ensure sufficient access to ecological energy sources, including a feasibility study into domestic production and incentive systems. The objective is for Iceland to formulate a clear vision on future policy in fuel matters and access to sustainable aviation fuel.

The most immediate pathway for reducing greenhouse gas emissions is the use of sustainable aviation fuel (SAF). Currently, the availability of SAF in Iceland is limited, and Icelandic airlines are only able to purchase small quantities abroad. Airlines are allowed to blend up to 50% of their fuel with SAF, and this threshold is expected to increase to 100% by 2030. However, achieving a high blend ratio is currently not feasible due to the limited supply of SAF and its high cost.

3.5 Industrial Processes and Product Use (IPPU)

Emissions, including projected emissions, from IPPU are dominated by the Metal industry (2C), specifically ferroalloys and aluminium production. The use of fluorinated gases (F-gases) in products as substitutes for Ozone Depleting Substances (ODS, 2F), mostly in the fishing industry, industrial refrigeration and commercial refrigeration, also contributes significantly to emissions from the IPPU sector. There is no Electronics industry (2E) in Iceland and therefore this is reported as NO.

Measures with the objective of reducing greenhouse gas emissions relevant for the IPPU sector, both implemented and adopted, are summarised in Table 3.13.

As emissions from the metal industry (2C) are a part of the EU ETS, the measures for that sector are supportive actions to enable the operators to fulfil all the requirements needed as a part of the EU ETS system.

Other measures on reducing greenhouse gas emissions from IPPU in the 2024 Action Plan are predominantly focused on achieving the phasing out of F-gases. The phasing out of F-gases is primarily achieved by the implementation of a taxation system based on the GWP of the F-gases imported in bulk and capping the amount of imported F-Gases (both included in the WEM scenario). The effect of the taxation is estimated with the effect of the cap.

Table 3.13. IPPU Policies and Measures.

PaM ID / Nation. ID	Name / Entity responsible	Objective: GHG	Type of instrument	Start year	Status	Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	Scenario 2055
301 S.3.A.2.	**Regulation capping the amount of imported F-gases**	To reduce the total global warming potential of imported HFCs and PFCs from 271 kt CO_2e/year (baseline) to 16.3 kt CO_2e/year in 2036 (6% of baseline).										WEM
	Ministry of the Environment, Energy and Climate	HFC PFC	Regulatory	2019	Implemented	Estimated with the measure Taxation of F-gases (302).						
302 S.3.A.3.	**Taxing imports of F-gases**	To reduce imports of F-gases by means of taxation. No quantified objective available.										WEM
	Ministry of Finance and Economic Affairs	HFC PFC	Fiscal	2020	Implemented	-80	-112	-138	-145	-139	-134	-144[23]
303 V.1.B.1.	**Implementing an updated ETS system**	Ensuring the compliance and competitiveness of operators covered by the ETS system by implementing appropriate regulations in a timely manner and providing guidance and information.										WEM
	Ministry of the Environment, Energy and Climate	CO_2 PFC	Regulatory	2021	Implemented	Estimate of impact not available.						
304 V.1.B.2.	**Programme for capturing carbon from local industry**	Establishment of an action plan for local industry, entities engaged in carbon capture and the government, implementing the declaration of intent on capturing GHGs signed by the relevant parties in 2021.										Not included
	Ministry of the Environment, Energy and Climate	CO_2	Planning Research	2025	Adopted	Estimate of impact not available.						

[23] Joint evaluation of impact of measures 301 and 302.

3.5.1 Regulation Capping the Amount of Imported F-Gases (301)

This action involves reducing emissions of certain fluorinated greenhouse gases (F-gases) by adopting a regulation capping the amount of imported hydrofluorocarbons. The objective is to reduce the total global-warming potential of imported refrigerants.

This measure has been expanded since the first Climate Action Plan in 2018 Climate Action Plan and has become a separate measure. The goal was the implementation of EU Regulation No 517/2014 on F-gases with import quotas to gradually reduce the amount of F-gases coming to the country until 2036. This regulation limits the total amount of the most significant F-gases which can be sold, banning the use of F-gases in many new types of equipment where less harmful alternatives are available, and preventing emissions of F-gases from existing equipment. The F-gas regulation is adapted to Icelandic conditions and the import quota differs from the values stated in the Annex V of the EU Regulation.

The first regulation was adopted in December 2018 (Icelandic Regulation No 1279/2018) and repealed in 2019 with Icelandic Regulation 2019/1066. A stricter quota was twice adopted through amendments (Regulation 1425/2020 and Regulation 1446/2023) to Regulation 1066/2019 on F-gases which took effect in January 2021 and January 2024, further accelerating the decrease in F-gas emissions in Iceland (see Table 3.14).

Certain other provisions are made in the regulation which aim to further reduce F-gas emissions, such as limits on their marketing and use. Refilling big systems with F-gases which have a very high global warming potential (maximum 2,500 GWP) have been banned since 1st of January 2020. This regulation is an important step in reducing greenhouse gas emissions from the use of F-gases in Iceland. The Icelandic Environment and Energy Agency is in charge of monitoring the regulation in line with provisions in the chemical law. Restrictions will be further increased if deemed necessary.

This measure is a part of the WEM projection scenario and has been quantified with the measure *Taxing imports of F-Gases (302)*.

Table 3.14. Comparison between steps in phasing out the bulk import of F-gases between Regulation No 1279/2018 and Regulation No 1446/2023.

	Regulation No 1279/2018 (repealed)			Regulation No 1446/2023 (in force)		
Steps	**Years**	**Percentage compared to baseline**	**kt CO_2e**	**Years**	**Percentage compared to baseline**	**kt CO_2e**
1 step	2019-23	90%	243.9	2019-20	90%	243.9
2 step	2024-28	60%	162.6	2021-23	35%	94.9
3 step	2029-33	30%	81.3	2024-26	12%	32.5
4 step	2034-35	20%	54.2	2027-29	10%	27.1
Final/ 5 step	2036	15%	40.6	2030-35	8%	21.7
Final				2036	6%	16.3
Baseline			271			271

3.5.2 Taxing Imports of F-Gases (302)

This action involves speeding up replacement of fluorinated greenhouse gases (F-gases) in Iceland by taxing imports of F-gases according to their global-warming potential. The objective is to reduce imports of F-gases by means of taxation.

The taxation was implemented into Icelandic legislation with Act on environmental and resource taxes in 2020 with an amendment (Act No 135/2019) to Act No 129/2009 on Environmental and Resource Taxes.

The tax is based on the polluter pays principle which stipulates that those who are responsible for pollution pay for the consequences of it. A certain price (2,500 ISK) is added per kilogram of F-gases for every tonne CO_2e that it emits, up to a price ceiling of 10,000 ISK per kilogram. It is important to accelerate the replacement of F-gases as much as possible since they have a significantly higher global warming potential than CO_2. A taxation on F-gases can have a significant impact in a short span of time because more sustainable solutions are already available and it is simple to phase out F-gases, technologically.

This measure is a part of the WEM projection scenario and has been quantified with the measure *Regulation capping the amount of imported F-Gases (301).*

3.5.2.1 Quantification – Regulation Capping the Amount of Imported F-Gases (301) and Taxing Imports of F-Gases (302)

Measure 301 and 302 were quantified together, and a comparison made between the import quota according to Regulation No 1446/2023 and the current tax (WEM) and with no import quota and no tax (WOM). The calculation and results are presented below. These measures (301 and 302) cause the biggest shift in the trend of emissions in the non-ETS IPPU emissions. The WOM and WEM scenarios are described as follows:

- The WOM scenario assumes that there was no regulation put in place on the import of F-gases and that the taxation was not implemented. This means that the WOM scenario starts deviating from the WEM scenario in 2018. The import of F-gases is projected based on calculating the line that best fits the import data from 2008-2017 using the "least squares" method for each blend.
- The WEM scenario takes into account the effect of Regulation No 1446/2023 as seen in Table 3.14 which phases out the import of F-gases and the effect of the taxation. The average of the real import was found for the years 2021-2023. The same constant import amount (below the quota for all years) is assumed to apply to future years to project the total import. It is noted that for WEM it cannot be predicted what blends will be imported in the future, and in light of quick developments in this sector (low GWP drop-ins and replacements), for each blend, the average percentage of all imported blends for 2021-2023 was calculated and the projected import was allocated accordingly; the import quota is expressed as CO_2e, and no further indications are given.

For both scenarios, the methodology for the calculation of the greenhouse gas emissions is the same as applied for the historical emissions as explained in the most recent edition of the National Inventory Document (NID).

Figure 3.11 shows the comparison between the two scenarios and clearly illustrates that a rapid phasing out of F-gases, achieved the import quota, and the taxation will drive further emission reductions from this category. Under both scenarios, some increase is still expected in certain years, due to the import fluctuations in the past and different lifetime of equipment. Table 3.15 shows the quantified emission impacts and the difference between the scenarios. The negative emission impact effect the first years after the deviation of the scenarios is due to hight imports in 2018 that is believed partly to originate in stock up of F-gases prior to the quota.

Table 3.15. Quantified emission impacts on 2F Products uses as substitutes for ODS of the measures: Regulation on F-gases and Taxation of F-Gases (301) and Product Uses as Substitutes for ODS (302) [kt CO_2e].

2F Product uses as substitutes for ODS	2018	2020	2025	2030	2035	2040	2045	2050	2055
Emissions without measures [kt CO_2e]	180	184	186	148	147	156	151	146	151
Emissions with measures [kt CO_2e]	182	198	105	35	9.3	11.3	12.1	12.1	10.1
Impact of measure [kt CO_2e]	-2.4	-15	80	112	138	145	139	134	141
Impact of measure [%]	1.3%	8.0%	-43%	-76%	-94%	-93%	-92%	-92%	-93%

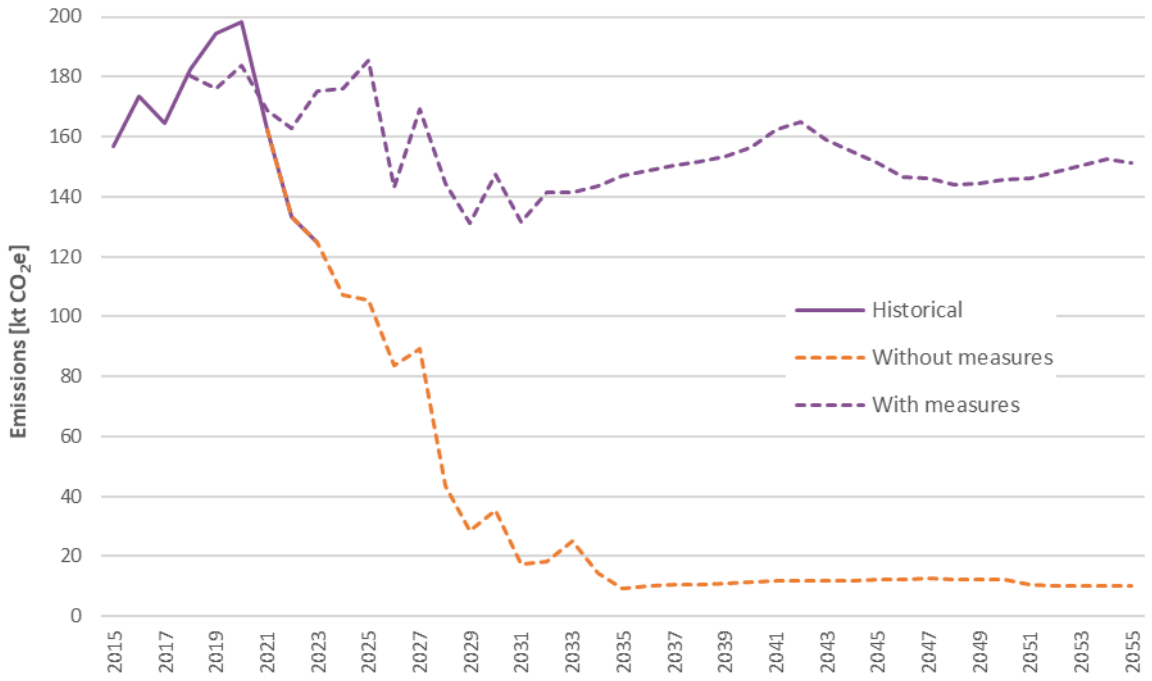

Figure 3.11. Greenhouse gas emissions [kt CO_2e] from Product Uses as Substitutes for ODS (2F). Comparison between the emissions with and without the measures.

3.5.3 Implementing an Updated ETS System (303)

Iceland continues to participate in the EU Emissions Trading System (ETS) which was revised with respect to its emission reduction objectives as part of the EU 'Fit for 55' package. The updated ETS system aims at a 62% reduction of greenhouse gas emissions within ETS sectors by 2030 compared to emission levels of 2005. The tightening of the

target, gradually covering also maritime transport, is part of the strengthened effort to achieve a 55% overall greenhouse gas emission reduction by 2023 with respect to 1990.

The ETS system has been introduced in 2005, was adopted in Iceland in 2007, and has been in force for stationary installations in Iceland since 2013.

The ETS is based on making certain operations in the European Economic Area (EEA) dependent on emission allowances. A certain limited total of emission allowances is allocated to the whole EEA per year, and the total allowances decrease each year. Emission allowances are in part allocated to operators for free, and in part auctioned off. If operators have managed to reduce their emissions to the extent that they have more emission allowances than they need, they can sell the excess allowances on the market. In the same way they have to buy emission allowances if their emissions exceed their allocated free emission allowances. In this manner, the trading system creates a financial incentive to reduce greenhouse gas emissions from operations, for example by investing in more environmentally friendly technology or optimising operations in other ways.

Since its introduction the ETS was expanded and more sectors have been included in the system. The third phase of the ETS lasted until the end of 2020, followed by the fourth period which lasts until 2030. Directive 2003/87/EC, establishing a scheme for greenhouse gas emission allowance trading within the Community, was first implemented in Iceland through Icelandic Act No 70/2012 on Climate. In December 2023, a new Act No 96/2023 on the EU emission trading system was adopted for implementing the Directive and at the same time ETS relevant provisions in the Act on Climate were repealed.

Measure 303, implementing the revised EU ETS, is also estimated in the WEM scenario, as all main industrial emitters fall into the ETS system. While within the overall ETS system emissions from installations have declined since 2005, no significant decrease is occurring within the EU ETS industry in Iceland and, in general, the emissions are quite steady. The reason is that new installations started operations during the time Iceland has participated in the EU ETS, and the fact that most of the emissions result from the industrial processes themselves rather than from burning of fossil fuels for energy. Since the emission reduction potential by transitioning to renewable energy is therefore limited, the biggest opportunity for EU ETS industries in Iceland is seen in the permanent removal of CO_2 from the process related stream of emissions. See measure 304, *Programme for capturing carbon from local industry*.

3.5.4 Programme for Capturing Carbon from Local Industry (304)

Permanent storage of carbon dioxide in geological formations is permitted in Iceland, creating an opportunity for Icelandic industrial installations with emission allowances under the EU's Emissions Trading System to have CO_2 injection deducted from their emissions accounting[24].

[24] Iceland implemented Directive 2009/31/EC (the CCS Directive) into Icelandic law with Act No 96/2023 with the aim to enable the EU ETS industry in Iceland to utilise the Carbfix method within the CCS.

Reykjavík Energy (*Orkuveita Reykjavíkur*) has developed, in collaboration with the University of Iceland and foreign stakeholders, a setup which involves capturing CO_2 from geothermal emissions and using the *Carbfix*[25] method to pump the CO_2, dissolved in water under pressure, to a depth of 500-800 meters into the basalt strata, where the CO_2 is permanently mineralised. ON, a subsidiary of Reykjavík Energy, has used the method for the last years to reduce emissions from Hellisheiði power plant with good results.

According to a declaration of intent[26], which was signed in 2019 by *Reykjavík Energy*, *Elkem*, *Alcoa Fjarðaál*, *Rio Tinto Iceland*, *Norðurál*, *PCC Bakki*, and the government, an analysis of the viability to use the same method in heavy industries in Iceland will been performed, exploring the possibilities of capturing CO_2 directly from their processes and pumping it into basalt strata. Subsequently, in June 2021 Carbfix hf. and Elkem hf. signed a memorandum of understanding stating that carbon capture and storage will be part of Elkem's climate action plan, in addition to the potential use of CO_2 for electricity generation.

Measure 304, Programme for capturing carbon from local industry, aims at establishing a roadmap and action plan for large-scale application of carbon capture and storage techniques by Icelandic heavy industry.

The overall undertaking is substantial, with a planned duration of two years. Methods need to be developed to separate the CO_2 from the emissions output of heavy industry so that similar measures can be used as in the Hellisheiði power plant. Experimental equipment to assess filtering and pumping techniques that are suitable and scalable for heavy industry must be designed and constructed.

[25] *Carbfix. https://www.carbfix.com/*
[26] *Declaration of intent by the Government, the heavy industry sector and Reykjavík Energy on carbon sequestration (Viljayfirlýsing stjórnvalda, stóriðjunnar og OR um hreinsun og bindingu kolefnis). Government of Iceland (Stjórnarráð Íslands). https://www.stjornarradid.is/library/01--Frettatengt---myndir-og-skrar/FOR/Fylgiskjol-i-frett/Viljayfirl%c3%bdsing%20undirritu%c3%b0.pdf*

3.6 Agriculture

Iceland is self-sufficient in all major livestock products, such as meat, milk, and eggs. Traditional livestock production is grassland-based and most farm animals are native breeds, i.e., dairy cattle, sheep, horses, and goats, which are all of an ancient Nordic origin with one breed for each species. These animals are generally smaller than the breeds common elsewhere in Europe. Beef production, however, is partly through imported breeds, as is most poultry and all pork production. There is not much arable crop production in Iceland, due to a cold climate and short growing season. Cropland in Iceland consists mainly of cultivated hayfields, although potatoes, barley, turnips, and carrots are grown on limited acreage.

The total greenhouse gas emissions from Agriculture in 2023 were 9% below the 1990 level. The main sources of greenhouse gas emissions in Agriculture are CH_4 emissions from 3A Enteric Fermentation and N_2O emissions from 3D1f Cultivation of Organic Soils. Emissions of CH_4 and N_2O have historically accounted for over 99% of the total emissions from agriculture in Iceland, with less than 1% arising from CO_2.

Five Agriculture measures are currently implemented or planned with the objective of reducing greenhouse gas emissions, summarised in Table 3.16.

Table 3.16. Agriculture Policies and Measures.

PaM ID Nation. ID	Name Entity responsible	Objective GHG	Type of instrument	Start year	Status	Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	2055	Scenario
401 S.4.A.2.	**Enhancement of climate advisory in agriculture**	60% of farms will have availed themselves of climate advisory in 2030											WEM
	Ministry of Industries	CH_4, N_2O	Education	2020	Implemented	Estimate of impact not available.							
402 S.4.A.3.	**Preparation of an efficient subsidy environment for agriculture**	The public-sector support system supports Iceland's climate goals											Not included
	Ministry of Industries	CH_4, N_2O	Fiscal	2024	Implemented	Estimate of impact not available.							
403 S.4.B.1.	**Implementation of an obligation to submit information on fertiliser and liming needs**	100% of farms submit information on fertiliser and liming needs in 2030											WAM
	Ministry of Industries	CO_2, N_2O	Information, Regulatory	2025	Planned	Included in measure 404.							
404 S.4.B.2.	**Support for the introduction of technology for precision distribution of fertilisers**	50% of farms use precision distribution of fertilisers in 2030											WAM
	Ministry of Industries	N_2O	Information, Fiscal	2025	Planned	-2.5	-15	-15	-15	-14	-14	-14[27]	
405 S.4.B.3.	**Support for farmers for measures to reduce fertiliser needs**	10% of farms avail themselves of support for liming or cultivation of nitrogen-fixing species in 2030											WAM
	Ministry of Industries	CO_2, N_2O	Fiscal, Information	2025	Planned	Included in measure 404.							

[27] Joint evaluation of impact of measures 403, 404 and 405.

The measures described in the table above are all from the Climate Action Plan (2024). The implemented measures in this sector have not been quantified. Action 401 is considered part of the WEM scenario since a precursor to this action was in place in the years 2020-2024 and is affecting the WEM projections even though it cannot be quantified how, exactly. The second implemented action (402) cannot be quantified since the process of remaking the subsidiary system has started but no results are out yet. The three planned measures (403, 404 and 405) are evaluated together and are part of the WAM scenario. Further explanations of each measure are given below.

3.6.1 Enhancing Climate Advisory in Agriculture (401)

The aim of this measure is to provide farmers with comprehensive counselling and education on how they can reduce their greenhouse gas emissions and increase carbon sequestration on their farms and land through a project called "Climate-friendly Agriculture" (Loftslagsvænn landbúnaður). The preparation of the project has been managed by the Icelandic Agricultural Advisory Centre (Ráðgjafarmiðstöð landbúnaðar) (IAAC), Land and Forest Iceland (LaFI), in collaboration with the Icelandic Sheep Farmers Association (Landssamtök sauðfjárbænda), the Icelandic Farmers Association (Bændasamtök Íslands), the MEEC and the Ministry of Food, Agriculture and Fisheries (now the Ministry of Industries).

Voluntary participants receive guidance on future planning, which focuses on reducing the carbon footprint of their farms and is based on data from each individual farm. Participation starts with an introductory course that covers the basics of climate issues in agriculture, followed by monthly remote lectures, and participators and advisors also meet annually at on-site workshops. Each participating farm sets its own climate action plan in which its conditions, capabilities and possibilities are considered. The action plans are revised annually and include a list of actions divided into three categories, A) actions to reduce emissions, B) carbon sequestration actions and C) other actions. Actions in category A include improved use of fertilisers, consideration of growing N-binding plants, less fossil fuel use, soil conservation, wetland restoration and reduction of enteric fermentation by improving the productivity per animal. Actions in category B include revegetation, reforestation, forestry and cultivation of shelterbelts and grazing forests. As for category C, farmers are encouraged to think outside the box and come up with new actions. The aim is to gradually expand the "toolbox" (the action plan).

Considerable experience and knowledge has been built up in the field of advising farmers on climate issues in this project so far. Peer education will be utilised further, based on the experience of farmers who have participated in the Climate Friendly Agriculture project in earlier years.

It is currently too complex to estimate the impact this measure has on greenhouse gas emissions. The potential reduction in emissions is expected to come from the improved use and handling of fertiliser, improved livestock feeding and managing, improvement in the use of machines and equipment, carbon sequestration projects and improved land use.

Currently, 55 farms are participating in the project. That is about 2% of Icelandic farms.

The government's aim is that 60% of farms will have availed themselves of climate advisory in 2030 and therefore reduced their greenhouse gas emissions.

3.6.2 Preparation of an Efficient Subsidy Environment for Agriculture (402)

Agricultural contracts are revised every 10 years, and the current ones are valid until 2026. The support system in the current contracts does not encourage reduction in greenhouse gas emissions. It is necessary to design the support system in such a way that it encourages a reduction in the emission of greenhouse gases from agriculture along with increased sequestration. Such a system must be implemented in steps, and it is unrealistic to expect that a system change will happen in one fell swoop.

The support system can include performance-based incentives aimed at:

- increased productivity per animal
- improved and more targeted fertiliser use with better information and better technology
- use of feed additives for ruminants to reduce emissions from enteric fermentation
- improved cultivation methods, i.a., not leaving fields unprotected and open
- locate cultivation on soil types that bind carbon instead of releasing it
- improved land use for the benefit of climate and biodiversity, e.g. with the protection and restoration of carbon-rich ecosystems and livestock grazing on green land
- transfer of support between sectors, to sectors with a low carbon footprint

This measure has started but currently it is not known what the impact will be on emissions.

The preparation work for the next agricultural contracts is underway and will be ready before revision of the agricultural contracts in 2026.

3.6.3 Implementation of an Obligation to Submit Information on Fertiliser and Liming Needs (403)

Production and use of fertilisers leads to the release of greenhouse gases. Better information about the fertiliser needs of cultivated land can lead to improved fertiliser use. Information about fertiliser needs is obtained from the analysis of soil samples taken from cultivated land. Farmers can be encouraged to take soil samples with some form of co-payment or be obliged to do so in order to benefit from agricultural subsidies.

The aim is that 100% of farms will submit information on fertiliser and liming needs in 2030 and can therefore fertilise more effectively.

Measure 403 is quantified with measures 404 and 405 (see Section 3.6.4.1).

3.6.4 Support for the Introduction of Technology for Precision Distribution of Fertilisers (404)

Various technical solutions can contribute to improved utilisation of fertilisers. This includes GPS technology for mapping with considerable accuracy where a certain amount

of fertiliser should be applied to a field, equipment for distribute livestock manure, etc. It is necessary to analyse which technical solutions are effective and define support for farmers to invest in such equipment. It can often be more suitable for such devices to be shared, e.g. equipment partners or contractors, especially when using environmentally friendly tractors.

According to the Climate Action Plan (2024), the experience of Icelandic farmers with precision agricultural technology, i.e. GPS fertiliser distribution of ready-made fertilisers, has shown savings in fertiliser use of 5-15%. If this measure, 404, i.e. precision distribution of fertilizers, is assessed together with measure 403, i.e. to study the characteristics of soil type, and measure 405, i.e. adjust the pH value in farmland to maximize fertiliser absorption, an even more reduction in fertilizer use of 15-25% can be achieved, according to the Climate Action Plan (2024). There is also the benefit of manure spreading equipment in minimising emissions from tractors, reducing leaching of nutrients and maximising uptake of nutrients in the soil.

Investing in such equipment can be expensive, but at the same time has significant climate benefits. Support for such investments must therefore be provided in the combined Climate and Energy Fund, with a special emphasis on the sharing economy solutions of agricultural associations. Methods for assessing the climate benefits of such investments for applications to the Climate and Energy Fund must be developed in cooperation with stakeholders, including the Icelandic Farmers Association (*Bændasamtök Íslands*) and the IAAC.

The aim is that 50% of farms will be using precision fertiliser distribution in 2030 and thereby reducing their fertiliser usage.

3.6.4.1 Quantification

This measure is quantified jointly with measures 403 and 405. As stated in the description of the current measure, a 15-25% (even more) reduction in fertiliser use can be achieved by implementing all of these three measures. For the joint quantification of these measures a 20% additional reduction in fertiliser use in 2030 was assumed compared to the WEM projection scenario. It was decided that the entire reduction should occur in the use of inorganic nitrogen fertilisers, which means about a 32% reduction in their use, based on the distribution of fertilisers in the WEM forecast in 2030. It then also means a 32% reduction in CO_2 emissions from Urea and Calcium Ammonium Nitrate (CAN).

The 32% percentage is found like this: [0.8 · total N amount applied + total N amount from organic amendments)]/N in inorganic fertiliser.

In other words, it was calculated how much the amount of inorganic fertilisers needed to be reduced for the total fertiliser use (inorganic + organic) to drop by 20%. This is done because the discussion during the preparation of the 2024 Climate Action Plan was mostly about reduction in the use of inorganic fertilisers.

Relatively higher indirect emissions are due to organic fertilisers than inorganic ones. If the use of inorganic fertilisers is reduced by 32%, the indirect emissions are reduced by only 6.0%. The 6.0% number was found in the following way:

[0.32 · sum of NH_3-N and NO_x-N from inorganic fertilisers + sum of NH_3-N and NO_x-N from organic fertilisers]/sum of NH_3-N and NO_x-N from all fertilisers.

The effect of these measures on liming is not taken into account.

These three measures, 403, 404, and 405 constitute the only difference from the WEM scenario. The WAM scenario is therefore obtained by using the adjusted fertiliser amounts for emission estimates and otherwise use WEM estimates. The emission reductions are obtained by comparing the WEM and WAM scenarios.

These measures affect the emissions from sectors 3D, 3H, and 3I. The total effects on Agricultural emissions can be seen in Table 3.17 and Figure 3.12.

Table 3.17. Agricultural emission with and without measures 403, 404 and 405, which have the status Planned and the start year 2025.

3 Agriculture	2025	2030	2040	2050	2055
Emissions without measures [kt CO_2e]	687	676	652	629	616
Emissions with measures [kt CO_2e]	684	661	637	615	602
Impact of measures [kt CO_2e]	2.5	15	15	14	14
Impact of measures [%]	0.37%	2.2%	2.2%	2.3%	2.3%

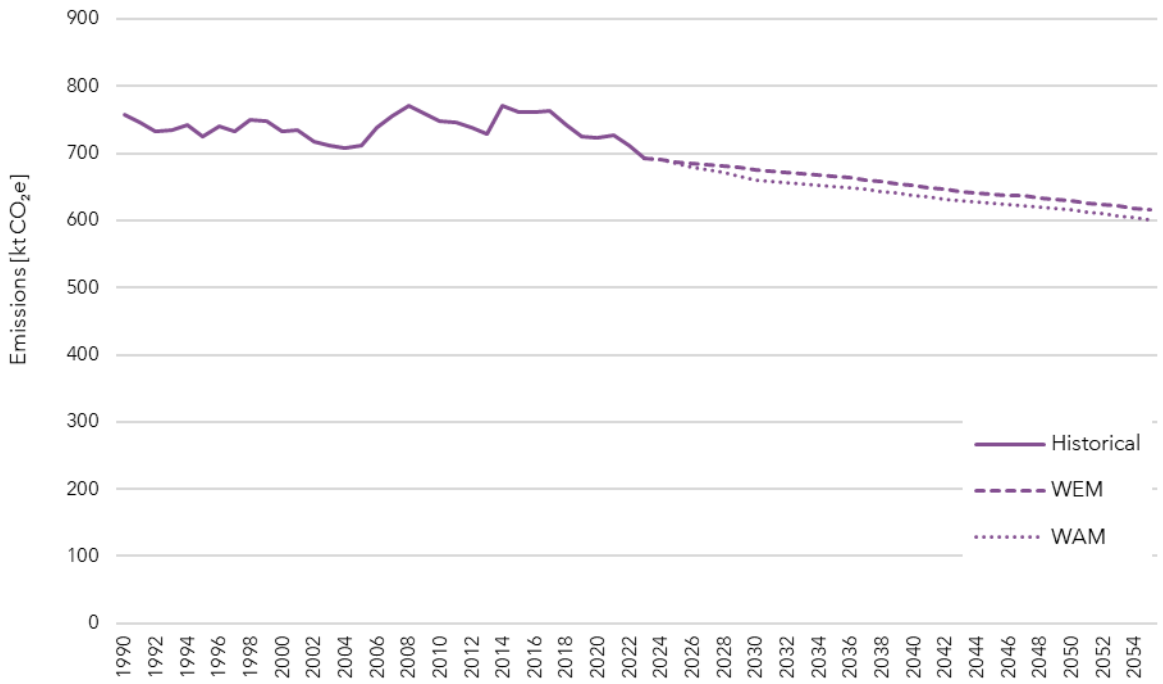

Figure 3.12. Agricultural emission with and without measures 403, 404 and 405, which have the status Planned and start year 2025.

3.6.5 Support for Farmers for Measures to Reduce Fertiliser Needs (405)

This measure introduces support for measures such as liming of agricultural land to increase acidity, using nitrogen-fixing species in crops, and shelterbelt cultivation to reduce fertiliser needs.

It is important to reach an acceptable level of acidity in the soil to improve the utilisation of fertilisers. This is related to action 403 on the implementation of an obligation to submit information on fertiliser and liming requirements. With better information about the fertiliser requirement of each part of cultivated land from the analysis of soil samples, it will be possible to increase the pH in the soil (less acidic, more alkaline) with increased calcification. By increasing the alkalinity in the soil, the plants' absorption of nutrients from the soil is improved and, as a result, the total need for fertilisers is reduced. Various additional benefits from increased shelterbelt cultivation can also be estimated, e.g. absorption of excess fertilisers, carbon sequestration, increased biodiversity, better water management, longer outdoor time for livestock and even increased yields.

To reduce the need for fertilisers, the following is suggested:

- Subsidies for increased liming will be awarded to those farmers who have had soil samples analysed and can thereby demonstrate a specific need for liming to increase the acidity of their land.
- Subsidies for the cultivation of nitrogen-fixing species will be awarded to those farmers who have had their soil samples analysed.
- Subsidies will be given to farmers for shelterbelt cultivation to improve conditions for cultivation.

Measure 405 is quantified with measures 403 and 404 (see Section 3.6.4.1).

The aim is that 10% of farms will avail themselves of support for liming or cultivation of nitrogen-fixing species in 2030 and therefore have reduced need for fertilising.

3.7 Land Use, Land-Use Change, and Forestry (LULUCF)

The LULUCF sector includes greenhouse gas emissions and removals associated with all managed lands, as defined by the guidelines outlined in *Volume 4: Agriculture, Forestry, and Other Land Use of the 2006 IPCC Guidelines* (IPCC, 2006), hereafter referred to as IPCC, 2006, and *the 2013 Supplement to the 2006 IPCC Guidelines*: Wetlands (IPCC, 2014), hereafter referred to as the 2013 Wetland Supplement. The compilation and reporting of the LULUCF sector inventory are conducted by Land and Forest Iceland (*Land og skógur,* LaFI).

The LULUCF sector received significant attention in the government's Climate Action Plan from 2024[28] (and in "Land and life – Land reclamation and national forestry plan" (*Land og líf – Landgræðsluáætlun og landsáætlun í skógrækt*) (Ministry of Food, Agriculture and Fisheries , 2022) documents. The first was published by the Ministry of the Environment, Energy and Climate and the second by the Ministry of Food, Agriculture and Fisheries. The documents stated that the sustainable management practices, like wetland restoration and protection of carbon rich ecosystems, in the LULUCF sector can contribute to climate change mitigation in several ways: by reducing emissions and maintaining and enhancing sinks and carbon stocks.

Furthermore, the government has implemented, through the Climate Act No 70/2012 ("*lög um loftslagsmál nr. 70/2012*")[29], that Iceland is to achieve carbon neutrality by the year 2040; this underlines the importance of enhanced carbon sequestration and greenhouse gas reduction action.

A total of five measures were identified for the LULUCF sector. One (601) in Table 3.18; Section 3.8.1) was classified as 'implemented', and its relevant underlying information was used to evaluate the WEM scenario projections. Measure 605 is implemented as well but is not part of the WEM scenario projections (Section 3.7.5). The other three ((602), (603), and (604)) in Table 3.18, and Sections 3.7.2 – 3.7.4) were categorized as planned measures, and not used to develop projections (Chapter 4). Table 3.18 summarises and provides more details for the measures.

The previous set of measures for the LULUCF sector, outlined in the 2023 Policies and Measures and Projections report, ceased to be in effect as of 2024 following the government's approval of a new climate action policy.

[28] Climate Action Plan 2024. See https://www.co2.is/
[29] Lög um loftslagsmál nr. 70/2012. See https://www.althingi.is/lagas/nuna/2012070.html.

Table 3.18. LULUCF Policies and Measures.

PaM ID / Nation. ID	Name / Entity responsible	Objective: GHG	Type of instrument	Start year	Status	Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	Scenario 2055
601 L.1.A.2.	**Incentives in the state support system for private land**	To enhance the alignment of the state support system for land reclamation and forestry with the government's objectives of increasing carbon sequestration, reducing GHG emissions, protecting biodiversity, and strengthening urban resilience, as outlined in the Climate Action Plan through 2030.										WEM
	Ministry of the Environment, Energy and Climate	CO_2, CH_4	Fiscal	2024	Implemented	Estimate of impact not available.						
602 L.1.B.1.	**Restoration of wetlands on state-owned land**	By 2030, approximately 6% of disturbed wetlands are expected to be reclaimed, compared to 2022.										Not included
	Ministry of the Environment, Energy and Climate	CO_2, CH_4	Regulatory	2025	Planned	Estimate of impact not available.						
603 L.1.C.1.	**Protection and restoration of birch forests on state-owned and public lands**	By 2030, birch forest restoration is projected to cover 5% of the country's total area.										Not included
	Ministry of the Environment, Energy and Climate	CO_2, CH_4	Regulatory	2025	Planned	Estimate of impact not available.						
604 L.1.C.3.	**Restoration of ecosystems on disturbed on state-owned and public lands**	Restore 100,000 hectares of degraded dryland by 2030.										Not included
	Ministry of the Environment, Energy and Climate	CO_2, CH_4	Regulatory	2025	Planned	Estimate of impact not available.						
605 L.1.C.6.	**Improved expertise and sustainable utilisation of wood products**	Enhance carbon sequestration in wood products and reduce fossil fuel usage by promoting the adoption of wood-based alternatives.										Not included
	Ministry of the Environment, Energy and Climate	CO_2	Fiscal, Information	2024	Implemented	Estimate of impact not available.						

3.7.1 Incentives in the State Support System for Private Land (601)

Short description:

The active participation of individuals, non-governmental organizations, corporations, and institutions in the planning and execution of land reclamation and forestry initiatives is essential for achieving climate and biodiversity protection goals within the land use sector. Consequently, it is important to evaluate and establish a more efficient funding system to support climate-related actions on private land. Furthermore, it is necessary to clarify how policies related to land reclamation and forestry can incentivize participation across societal sectors, thereby enhancing the contributions of non-governmental organizations and individuals.

Objective:

To strengthen the alignment of the state support system for land reclamation and forestry with the government's overarching objectives outlined in the Climate Action Plan through 2030, it is essential to prioritize measures that directly contribute to increasing carbon sequestration and reducing greenhouse gas. These efforts will focus on implementing sustainable practices in forestry and promoting the protection of ecosystems and restoration of degraded lands on private land. Specifically, the measure will be implemented through five actions to incentivize the following on private lands: Enhanced afforestation actions, Protection and recovery of natural forests, Restoration of ecosystems on degraded land (grassland), Protection of wetlands, and Restoration of degraded wetlands (see Chapter 4.9.2 for more information). By implementing these efforts, the state support system can more effectively address the challenges of climate change while also delivering co-benefits, such as improving air and water quality, supporting wildlife habitats.

Since the incentive received financing under the Government Fiscal Plan, it was included as one of the measures, which serves as the foundation for the WEM scenario outlined in Chapter 4.9.2. All other measures were formulated and proposed; however, financing was not secured, and therefore, those measures were defined as Planned.

3.7.2 Restoration of Wetlands on State-Owned Land (602)

Short description:

The action entails the strategic reclamation of wetlands on state-owned lands in accordance with the state implementation plan (see measure L.1.B.1 in Table 3.18). Restoring these wetlands presents significant potential for mitigating greenhouse gas emissions. As outlined in the government's land reclamation and forestry policy, *Land and Life*[30], it is projected that 15,600 ha of disturbed wetlands – approximately 6% – will be restored by 2031.

Objective:

[30] Land and life – Land reclamation and national forestry plan, published in August 2022.

By 2030, it is projected that approximately 6% of the wetlands disturbed by human activities will have undergone reclamation and restoration efforts, representing a notable improvement compared to the state of these ecosystems in 2022. This progress highlights a growing commitment to addressing environmental degradation and restoring critical habitats for biodiversity, water regulation, and carbon storage.

3.7.3 Protection and Restoration of Birch Forests on State-Owned and Public Lands (603)

Short description:

Natural birch forests cover approximately 1.5% of Iceland's land area in recent years, hence, there is significant potential to expand this coverage and enhance carbon sequestration. Achieving this potential requires the implementation of targeted protection and restoration strategies. Ensuring the conservation of these ecosystems is essential, along with the development of an action plan that incorporates measures such as afforestation and seedbed enhancement, aligned with forest landscape restoration principles and an ecosystem-based approach. It is crucial that the state establishes a clear framework that facilitates greater access to state-owned land for initiatives aimed at protecting and restoring birch forests.

Objective:

By 2030, the restoration of birch forests is expected to expand significantly, covering approximately 5% of the nation's total land area. This ambitious initiative underscores the country's commitment to ecological recovery, biodiversity enhancement, and sustainable land management practices.

3.7.4 Restoration of Ecosystems on Disturbed State-Owned and Public Lands (604)

Short description:

The Icelandic Treasury owns nearly 430 parcels of land, many of which present potential opportunities for dryland ecosystem restoration. It is crucial to assess the suitability of these parcels for restoration efforts, develop and establish a prioritization framework, and define the specific actions necessary to achieve optimal ecological outcomes.

Objective:

The goal is to restore 100,000 hectares of degraded dryland by 2030, revitalizing these vital ecosystems through sustainable efforts. This ambitious initiative will focus on improving soil health, promoting biodiversity, and enhancing water retention to combat land degradation. By implementing sustainable land management practices and soil regeneration techniques, Iceland aims to not only reverse environmental damage but also boost local resilience against climate change. Moreover, the restoration efforts will support both ecological balance and the livelihoods of communities.

3.7.5 Improved Expertise and Sustainable Utilization of Wood Products (605)

Short description:

This measure is twofold, on one hand to promote long-term carbon storage in wood products, and on the other hand to promote the use of wood to replace fossil fuels. Ensuring sustained and long-term carbon sequestration in wood products is of fundamental importance. This initiative involves enhancing expertise and establishing incentives to promote the increased production and use of Icelandic wood products. These efforts contribute to greater carbon sequestration in wood products. Another use of timber is to replace fossil fuels (e.g. in industry) to reduce greenhouse gas emissions from fossil fuel consumption and the need for fossil fuel imports, although this would not contribute to long-term carbon storage.

Objective:

Enhancing carbon sequestration in wood products offers a powerful strategy to mitigate climate change, as wood naturally stores carbon throughout its lifespan. By promoting the widespread adoption of wood-based alternatives to traditional materials, Iceland can increase carbon storage. Wood can also be used as a substitute for fossil fuels to reduce reliance on fossil fuels. This shift encourages the extension of circular economy.

3.8 Waste

This sector includes emission projections from Solid Waste Disposal (5A), Biological Treatment of Solid Waste (5B), Incineration and Open Burning of Waste (5C), and Wastewater Treatment and Discharge (5D).

For most of the 20th century, Solid Waste Disposal Sites (SWDSs) in Iceland were numerous, small, and located near the area where waste was generated. In 1991, the Álfsnes SWDS opened, becoming the largest SWDS in Iceland. It now serves the Capital Region, where approximately two-thirds of the population lives. A new biogas and composting plant called GAJA has been built at Álfsnes and started operating in the second half of 2020. According to the operation permit (Icelandic Environment and Energy Agency, 2020) issued by the Icelandic Environment and Energy Agency (Environment Agency of Iceland at the time), the plant is expected to turn up to 30-40 kt of waste into compost and methane gas annually. The methane will mostly be used as fuel for vehicles, and therefore the emissions from methane produced in GAJA is included in the Road Transport sector (see section 6). There was a trial to produce electricity from the recovered methane, but this could not compete with the cheaper electricity production from geothermal or hydropower plants, so the methane is mostly used for vehicle fuel. Other plans to utilise the methane produced in GAJA include asphalt production, where it would be replacing diesel oil, and coffee roasting, where it would be replacing propane gas (RÚV, 2021).

Until the 1970s, open burning of waste was the most common method of waste management outside the Capital Region. However, this practice was banned in 1999 and is non-existent today. By early 2012, a total of four waste incinerators were in operation. However, by the end of 2012, all but one of incineration plants (Kalka) had closed, with emissions from Kalka being reported from 2013 onwards. Kalka primarily handles mixed general waste from the four municipalities that own it, as well as waste from Iceland's main international airport. To a lesser extent, it also handles clinical waste, hazardous waste, slaughterhouse waste, and other waste categories.

Biological treatment of waste started in the 1990s and has increased slowly but steadily since then.

In the early 1990s only a small percentage of reported waste was recycled or reused. Their share of total waste management increased steadily since then and has been around 84% for the last five years. However, the total reported waste amounts in the last five years are also 3-4-fold compared to the 1990 amount.

Wastewater treatment in Iceland consists mainly of basic treatment with subsequent discharge into the sea. In recent years, more advanced wastewater treatments have been commissioned in some smaller municipalities, but their share of total wastewater treatment systems in Iceland does not exceed 2% of domestic wastewater and 9% of industrial wastewater.

Nine waste management measures are reported for the current submission (2025). Five are currently implemented, one is adopted, and three are planned, all with the main

objective of reducing greenhouse gas emissions. The measures are summarised in Table 3.19.

As for links to other policies, reports, and government plans, three measures are from the 2020 Action Plan (502, 504 and 505), six measures are part of the *Towards the Circular Economy,* a waste policy of the Ministry of the Environment and Natural Resources from 2021 (501, 503, 504, 505, 506 and 507) and two measures are linked to the Icelandic River Basin Management 2022-2027 (508 and 509).

The ban on landfilling of biowaste waste (504) is the only measure included in the projected WEM scenario for the Waste sector, although not quantified.

More detailed descriptions of these measures can be found in the sections below, as well as in the current Climate Action Plan (Ministry of the Environment, Energy and Climate, 2024), in the 2020 Climate Action Plan (Ministry for the Environment and Natural Resources, 2020), the 2022 Progress Report (Ministry of the Environment, Energy and Climate, 2022). in *Towards a Circular Economy* (Ministry for the Environment and Natural Resources, 2021), and in the Icelandic River Basin Management 2022-2027 (Icelandic Environment and Energy Agency, 2022).

Table 3.19. Waste Policies and Measures.

PaM ID / Nation. ID	Name / Implementing entity	Objective: GHG	Type of instrument	Start year	Status	Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	Scenario 2055
501 S.7.A.1.	**Follow-up on actions from the policy *Towards the Circular Economy***	To achieve the goals of 'Towards the Circular Economy'.										Not included
	Ministry of the Environment, Energy and Climate	CH_4	Regulatory, Fiscal, Education	2023	Implemented	Estimate of impact not available.						
502 S.7.A.2.	**Implementation of the action plan *Less Food Waste***	50% reduction in food waste over the entire food value chain in Iceland by 2030 compared to 2022.										Not included
	Ministry of the Environment, Energy and Climate	CH_4	Reg., Fiscal, Edu., Infor., Research	2021	Implemented	Estimate of impact not available.						
503 S.7.B.1.	**Enforce the legislation on waste stream segregation**	To increase the share of household waste sent to recycling, i.e. at least 50% by 2020, 55% by 2025, 60% by 2030, and 65% by 2035.										Not included
	Ministry of the Environment, Energy and Climate	CH_4	Regulatory, Planning	2023	Implemented	Estimate of impact not available.						
504 S.7.B.3.	**Ban on landfilling of biowaste**	To prevent separately sorted and collected biowaste from ending up in landfill.										WEM
	Ministry of the Environment, Energy and Climate	CH_4	Regulatory	2023	Implemented	Estimate of impact not available.						
505 S.7.B.4.	**Ban on landfilling of organic waste**	To prevent separately sorted and collected organic waste from ending up in landfill.										WAM
	Ministry of the Environment, Energy and Climate	CH_4	Regulatory	2028	Planned	-0.10	-3.4	-16	-19	-19	-18	-17
506 S.7.B.5.	**Collaborative project on developing a bioenergy plant**	10,000 tonnes of organic waste per year to be directed to the new bioenergy plant instead of landfill, starting in 2028.										WAM
	Ministry of the Environment, Energy and Climate	CH_4	Fiscal, Planning	2025	Planned	Included in measure 505.						

PaM ID Nation. ID	Name Implementing entity	Objective GHG	Type of instrument	Start year	Status	Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	Scenario 2055
507 S.7.B.6.	**Collaborative project for developing incineration plant(s)**	100,000 tonnes of waste per year to be directed to the new incineration facility/facilities instead of landfill, starting in 2030.										WAM
	Ministry of the Environment, Energy and Climate	CH_4	Fiscal, Planning	2025	Planned	Included in measure 505.						
508 S.7.C.1.	**Collaboration projects for green solutions in wastewater management**	To minimise the amount of organic by-products ending up in sewers and receivers.										Not included
	Ministry of the Environment, Energy and Climate	CH_4, N_2O	Fiscal, Planning	2025	Adopted	Estimate of impact not available.						
509 S.7.C.2.	**Financial support for infrastructure development for wastewater treatment**	To improve wastewater treatment in Iceland by developing infrastructure in nine locations by 2030.										Not included
	Ministry of the Environment, Energy and Climate	CH_4, N_2O	Fiscal	2020	Implemented	Estimate of impact not available.						

3.8.1 Towards the Circular Economy (501)

In June 2021, the Icelandic Minister for the Environment and Natural Resources introduced the strategy Towards the Circular Economy (*Í átt að hringrásarhagkerfi*). The strategy aims to transition Iceland towards a circular economy by reducing waste, improving resource efficiency, and minimising environmental impacts, particularly greenhouse gas emissions associated with waste management. The strategy follows the EU waste hierarchy, prioritizing waste prevention, reuse, and recycling over disposal . It also aligns with Iceland's international commitments[31] and commitments under EU regulations[32], supporting the shift from a linear consumption model to one that prioritises sustainability.

Five main objectives of the Towards the Circular Economy:

1. Reducing waste generation – Encouraging sustainable consumption, extending product lifespans, and minimising waste production.

2. Lowering greenhouse gas emissions – Reducing methane emissions from landfills and improving waste treatment methods.

3. Enhancing resource utilisation – Increasing recycling, reuse, and recovery to ensure more efficient use of materials.

4. Decreasing raw material consumption – Promoting sustainable production practices to lessen the environmental impact of extracting and processing raw materials.

5. Minimising harmful substances – Reducing hazardous materials in products and waste streams to protect human health and the environment.

Two components of Towards the Circular Economy:

1. Together Against Waste (*Saman gegn* sóun, 2016-2027) – A waste preventing strategy focusing on reducing waste generation by promoting efficient use of resources. It emphasises sustainable consumption, product design that extends longevity, and reducing overall waste production. Key actions under this strategy include encouraging responsible consumer behaviour, improving product reparability, and fostering circular business models. The Icelandic Environment and Energy Agency (previously the Environment Agency of Iceland) oversees the project. Every couple of years the focus is on a particular waste category such as: food, plastic, textiles, electronics, construction, or paper.

2. Waste Management strategy (*Stefna um meðhöndlun úrgangs*, 2021-2032*)* – Replaced the National Waste Management Plan (*Landsáætlun um meðhöndlun úrgangs,* 2013-2024) and introduces stricter regulations to improve waste sorting, recycling, and disposal. Key measures include:

[31] Paris Agreement and the Sustainable Development Goals (particularly Goal 12 on responsible consumption and production and Goal 13 on climate action).
[32] EU Circular Economy Action Plans and Waste Directives (2018/849, 2018/850, 2018/851and 2019/904).

a. Mandatory waste sorting – Households and businesses are obligated to separate waste at the source to enhance recycling and recovery rates.

b. Pay-as-You-Throw System – Charges individuals and businesses based on the amount of waste they generate, incentivizing waste reduction and proper sorting.

c. Extended Producer Responsibility (EPR) – Increases obligations for manufacturers and importers to manage the end-of-life disposal of their products, particularly packaging and plastics.

d. Ban on landfilling of organic waste – Aims to mitigate methane emissions, a potent greenhouse gas.

e. Investment in infrastructure – Supports the development of new facilities for waste sorting, composting, and recycling to ensure effective implementation of the circular economy model.

f. Public awareness campaigns – Educate citizens on waste reduction, proper sorting practices, and the environmental benefits of recycling.

Measure 501 ensures targeted follow-up on the implementation of measures under the Towards the Circular Economy strategy. The measures are 27 in total and are at various stages of implementation. In addition to the role of measure 501, support will be provided to the Circular Economy Cluster, a project led by the Icelandic Environment and Energy Agency. The cluster collaborates with and support innovative companies engaged in the circular economy, helping to find new pathways for materials that would otherwise be discarded. The Ministry of the Environment, Energy and Climate is responsible for overseeing the implementation, with key entities including the Ministry of Finance and Economic Affairs, the Icelandic Environment and Energy Agency, the Icelandic Recycling Fund, and the Icelandic Association of Local Authorities

As for progress, new Icelandic waste management laws[33] came into force in January 2023, introducing amendments from 2021 to the laws on public health and pollution control[34], waste management[35], and recycling fees[36]. These legislative changes, collectively referred as the Circular Economy Act (*hringrásarlögin*) had significantly impact for households, businesses, and municipalities, requiring widespread participation in waste sorting and improvements in waste management.

- Key changes for households include a standardised mandatory national waste sorting system, requiring separation of at least seven waste categories: Paper, plastic, organic waste, textiles, metals, glass, and hazardous waste. Households

[33] Act No 103/2021 (*lög um breytingu á lögum um hollustuhætti og mengunarvarnir, lögum um meðhöndlun úrgangs og lögum um úrvinnslugjald (EES-reglur, hringrásarhagkerfi*). https://www.althingi.is/altext/stjt/2021.103.html

[34] Act No 7/1998 (*lög um hollustuhætti og mengunarvarnir*). https://www.althingi.is/altext/stjt/1998.007.html

[35] Act No 55/2003 (*lög um meðhöndlun úrgangs*). https://www.althingi.is/altext/stjt/2003.055.html

[36] Act No 162/2002 (*lög um úrvinnslugjald*). https://www.althingi.is/altext/stjt/2002.162.html

must separate paper, plastic, and organic waste, while other materials are collected elsewhere such as at waste collecting centres. Incineration or landfilling of separately collected waste is prohibited, ensuring repurposing of recyclable materials. Additionally, a Pay-as-You-Throw system allows municipalities to charge fees based on the amount of waste generated, encouraging better sorting and waste reduction.

- Key changes for businesses include workplaces being mandated to sorting waste in the same seven categories and must arrange for proper waste collection and disposal. Specifically, construction and demolition waste must now be sorted such as hazardous waste, wood, mineral waste, metals, glass, plastic, and gypsum.

- The extended producer responsibility (EPR) system has been expanded to include recycling fees for additional packaging materials, including glass, metal, and wood. These fees will help finance waste collection, recycling infrastructure, and environmental cleanup efforts.

Measure 501 is currently not included in a projection scenario.

3.8.2 Reduction in Food Waste (502)

In 2021, the Icelandic Ministry of the Environment and Natural Resources introduced the comprehensive action plan Less Food Waste (*Minni matarsóun*). This action plan outlines 24 measures designed to reduce food waste across the entire value chain, from primary production to consumers. The action plan aligns with Iceland's international commitments[37] and commitments under EU regulations[38]

The plan sets ambitious targets for reducing food waste: 30% reduction by 2025 and 50% reduction by 2030 compared to 2021. To achieve these goals, the plan introduces policies that target businesses, households, and institutions.

The action plan is divided into four main pillars:

1. Industry cooperation and partnerships - Strengthening collaboration between businesses and the government to tackle food waste, raising awareness among food producers and retailers, enhancing coordination to ensure that surplus food is utilised rather than discarded.

2. Education and awareness – Launching public awareness campaigns to change consumption habits, improving food waste education in schools and workplaces and providing guidelines on proper food storage and expiration dates.

3. Research and innovation - Regularly measuring food waste to track progress, supporting studies on food waste causes in households and businesses and encouraging innovation in food preservation and by-product utilisation.

[37] The Paris Agreement; the Sustainable Development Goal 12.3 (halving per capita global food waste by 2030).
[38] EU Waste Directives 2018/851 and 2019/1597.

4. Economic incentives and regulations - Implementing financial incentives to encourage food donation, reviewing regulations on food expiration dates and surplus food usage and establishing a pay-as-you-throw system for waste collection to encourage waste reduction.

Measure 502 focuses on continuing the implementation of the 'Less Food Waste' action plan. It is extended from Iceland's previous Climate Action Plan from 2020[39]. The Ministry of the Environment, Energy and Climate is responsible for overseeing the implementation of the action plan. Out of the 24 actions, 15 are to be directly implemented by the government, while the remaining nine are the responsibility of the private sector.

As for progress, when the action plan was published only seven actions were implemented and one was completed. However, by early 2025, six of 24 measures are considered in preparation, 12 are implemented and four are completed. Completed measures:

- Research on the causes of food waste in households.
- Publication of guidelines on proper procedures for food donations.
- Innovation, research, and development to reduce food waste:
    - The Climate Fund (*Loftslagssjóður*) supports innovation projects in climate-related fields. Grants from the fund have been allocated to projects that focus on reducing food waste by developing new climate-friendly technologies and solutions.
    - In addition, in July 2021, the Minister for the Environment and Natural Resources introduced special grants to promote the circular economy, with ISK 230 million allocated in the first round. These grants aim to enhance waste prevention, foster innovation, and support the development of waste-reducing technologies. The funding will be awarded annually, with food waste reduction projects being eligible.
    - Other funding opportunities include grants from the Icelandic Research Fund (*Rannsóknasjóður*) and the Technology Development Fund (*Tækniþróunarsjóður*), both managed by the Icelandic Centre for Research (*Rannís*).
- Implementation of economic incentives to reduce food waste:
    - Pay-as-you-throw system where municipalities are mandates to charge waste management fees based on waste amount and type.

Additionally, a status report on food waste in Iceland[40] was published in early 2025. It presents the results of measurements conducted by the Icelandic Environment and Energy Agency. This was the first time food waste has been measured across the entire food value chain in Iceland using the standardised EU methodology. The report one of 24 measures outlined in the action plan, i.e. regular measurements of food waste.

Measure 502 is currently not included in a projection scenario.

[39] Measure F3 in *Iceland's 2020 Climate Action Plan*. https://www.stjornarradid.is/library/[...].pdf
[40] *Food Waste in Iceland 2022* (in Icelandic). https://ust.is/library/Skrar/utgefid-efni/Annad/[…].pdf

3.8.3 Waste Stream Segregation (503)

The Waste Management strategy, as outlined in section 3.8.1, is one of the two key component of the Towards the Circular Economy strategy. As part of the Waste Management strategy, a standardised and mandatory national waste sorting system was implemented in January 2023 through Act No 103/2021 (as described in section 3.8.1). Under this system, households must separate paper, plastic, and organic waste while business are required to sort paper, plastic, organic waste, textiles, metals, glass, and hazardous waste. The business must also ensure proper waste collection and disposal. Additionally, construction and demolition waste must be sorted such as hazardous waste, wood, mineral waste, metals, glass, plastic, and gypsum.

Since 2023, the focus has been on enforcing this law for households. However, significant shortcomings remain for businesses and legal entities. As such, measure 503 focuses on the continued enforcement of the waste sorting obligations set out in the Act No 103/2021, aiming to maximise value derived from waste and minimise the generation of mixed waste/unsorted waste, which is in line with the objectives of Towards the Circular Economy strategy (see section 3.9.1). The Ministry of the Environment, Energy and Climate is responsible for overseeing the implementation of measure 503, with local governments (municipalities) as a key implementing entity where they continue adapting their waste management systems while the government to monitor and address challenges that may arise during the implementation. The goal is to increase the share of household waste that goes to recycling to at least 55% by 2025, 60% by 2030, and 65% by 2035.

Measure 503 is currently not included in a projection scenario.

3.8.4 Ban on Landfilling of Biowaste (504)

The Act 103/2021, through the amendments to the waste management act 55/2003, involves restrictions on landfilling and waste incineration in Iceland. Waste that has been separately collected for recycling cannot be sent to landfill or incineration, except in cases where it cannot be reused or recycled efficiently. Specifically, biowaste (*lífúrgangur*) must be separately collected and treated accordingly. Biowaste is biodegradable garden waste, food and kitchen waste from homes, offices, wholesalers, retailers, restaurants, canteens, and catering companies, and similar waste from food-processing plants[41].

Measure 504 focuses on the implementation of the ban on landfilling of biowaste and the obligation to sort biowaste. It is extended from Iceland's previous Climate Action Plan from 2020[42] and is in line with the objectives of Towards the Circular Economy strategy (see section 3.9.1). The Ministry of the Environment, Energy and Climate is responsible for

[41] Article 6 in Act No 103/2021. https://www.althingi.is/altext/stjt/2021.103.html
[42] Measure F2 in *Iceland's 2020 Climate Action Plan*. https://www.stjornarradid.is/library/[...].pdf

overseeing the implementation of measure 504, with local governments (municipalities) as a key implementing entity.

As for progress, landfill disposal at SWDS Álfsnes, Iceland's largest landfill site, decreased by nearly 89% in the first quarter of 2024 compared to the first quarter of 2023. This achievement can be attributed to 1) the introduction of separate biowaste collection in the capital region with the waste being directed to GAJA gas and composting plant, and 2) the cessation of organic waste landfilling in Álfsnes, coinciding with SORPA bs. starting to export mixed waste for energy recovery in Sweden. In more details, the separate the amount of food waste in mixed waste (grey bins) decreased by 65%, coincide with good quality of compost at GAJA and 2023 being a record year in methane production and sales, providing a valuable green energy source for transport and industry. All methane produced is fully utilised, and the compost generated at GAJA meets the required standards as a soil improver. Moreover, a public survey conducted at the end of 2023 showed that 90% of residents of capital region sort biowaste, 94% sort plastic packaging, and 98% sort paper and cardboard, demonstrating strong public participation in the new waste management system[43].

Measure 504 is included in a WEM projection scenario in the Waste sector, although not quantified.

3.8.5 Ban on Landfilling of Organic Waste (505)

Measure 505 focuses on the implementation of the ban on landfilling of organic waste and the obligation to sort organic waste. This include introducing the plan for the ban, submitting a legislative bill on the ban, and ensuring its implementation through follow-up measures.

Organic waste refers to all waste that can be broken down by microorganisms, e.g. slaughterhouse waste, fish waste, beer brewing waste, farm-animal waste, wood, fish oil, horticultural waste, paper and cardboard waste, sludge, and other biodegradable waste.

Measure 505 is extended from Iceland's previous Climate Action Plan from 2020[44] and is in line with the objectives of Towards the Circular Economy strategy (see section 3.8.1). It is considered a *planned* measure, with 2028 as a potential start year. The Ministry of the Environment, Energy and Climate is responsible for overseeing the implementation, with local governments (municipalities) as a key implementing entity.

3.8.5.1 Quantification

Measures 505, 506 and 507 are included of WAM projection scenario for the Waste sector and are quantified together.

[43] "Eftirtektarverður samdráttur í urðun […]". https://www.stjornarradid.is/efst-a-baugi
[44] Measure F2 in *Iceland's 2020 Climate Action Plan*. https://www.stjornarradid.is/library/[...].pdf

The joint quantification of these measures is based on following assumptions:

- From 2028, landfilling of food (including slaughterhouse waste), garden, paper, wood, textiles, nappies, and sludge will be banned. As a result, emissions from Waste subsector 5A will decrease significantly when these waste categories no longer sent to landfill.
- From 2030, emissions will increase in subsector 5B due to the operation of bioenergy plant and in subsector 5C due to the operation of the new incineration plant(s). However, these increases are relatively small compared to the overall reduction in emissions achieved by diverting waste from landfill.

The bioenergy and incineration plant aim to reduce the amount of waste being landfilled, 10 kt and 100 kt respectively. However, the projected emissions from landfill (subsector 5A) in the WAM scenario do not explicitly account for these two measures. This is because the ban on landfilling of organic waste (measure 505) will result in only inert waste being disposed of in landfills.

The impact of measure 510 on Waste sector emissions relatively to the WEM scenario is presented in Table 3.20 and Figure 3.13.

Table 3.20. Emissions from Waste sector with and without measures 505, 506 and 507.

5 Waste	2025	2030	2035	2040	2045	2050	2055
Emissions without measures [kt CO_2e]	180	148	131	111	95	84	76
Emissions with measures [kt CO_2e]	181	145	115	92	76	66	59
Impact of measures [kt CO_2e]	0.10	-3.4	-16	-19	-19	-18	-17
Impact of measures [%]	0.057%	-2.3%	-12%	-17%	-20%	-22%	-23%

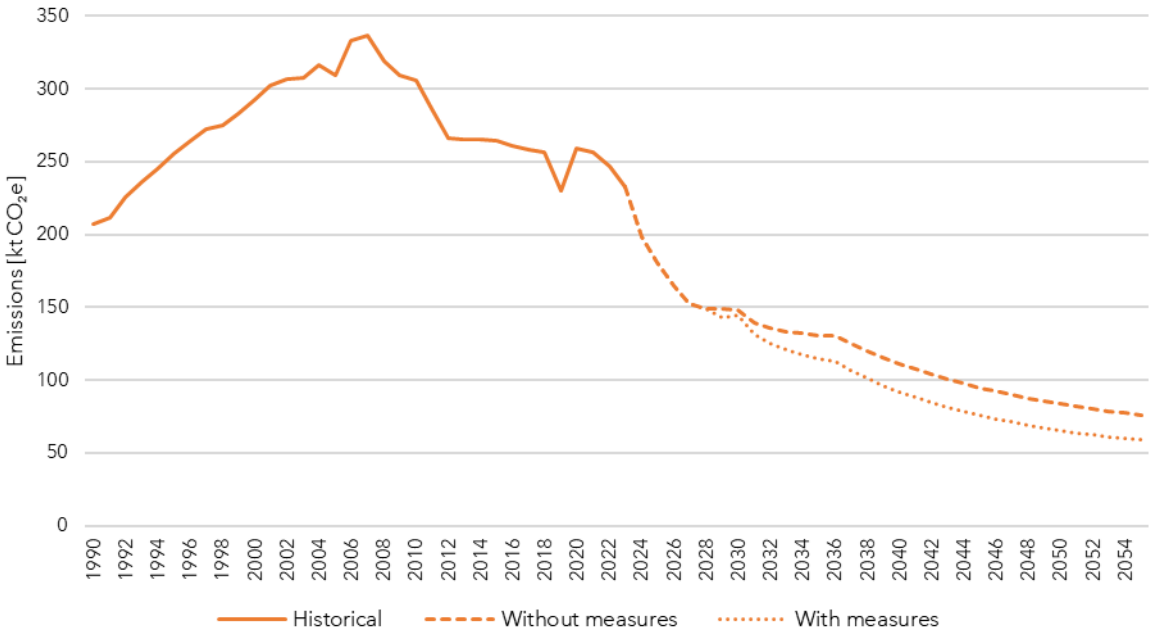

Figure 3.13. Emissions from Waste sector with and without measures 505, 506 and 507.

3.8.6 Bioenergy Plant (506)

Measure 506 involves a collaborative project to develop a bioenergy plant in Eyjafjörður, northern Iceland. The primary raw materials to be processed at the bioenergy plant include animal carcasses and slaughter waste that would otherwise be landfilled, and possibly also organic household waste.

Currently, animal carcasses classified at highest risk (CAT1) are landfilled, despite this being illegal due to the lack of viable alternative options, posing both health risks and greenhouse gas emissions. In 2022, the EFTA Surveillance Authority (ESA) called for Iceland to comply with the ruling of the EFTA Court to fulfil the requirements of EEA regulations on animal by-products[45].

The bioenergy plant will produce meat meal, fat, and methane. Meat meal can be used as an alternative fuel for combustion while fat can be utilised for biodiesel production. Additionally, materials from lower-risk animal categories or manure can be processed for methane production. With the establishment of the bioenergy plant, Iceland will meet its legal obligations for processing animal carcasses while simultaneously creating valuable energy resources.

As for the state of implementation, measure 506 is considered *planned*. The potential start year is 2025. The aim is the plant(s) to reach the full capacity in 2028, redirect 10,000 tonnes of organic waste per year from landfill to the bioenergy plant which is in line with the objectives of Towards the Circular Economy strategy (see section 3.9.1). The Ministry of the Environment, Energy and Climate is responsible for overseeing the implementation of measure 506, with Líforkugarðar Ltd. as an implementing entity.

Measure 506 is included of WAM projection scenario in the Waste sector. It is quantified with measures 505 and 507 (see section 3.8.5.1).

3.8.7 Incineration Plant(s) (507)

Measure 507 involves a collaborative project for developing the necessary infrastructure to enable 100,000–140,000 tonnes of waste to be incinerated with energy recovery and carbon capture, in line with the objectives of Towards the Circular Economy strategy (see section 3.9.1). The waste in question is mixed waste from households and operators and other waste that is not suitable for recycling. The incineration plant(s)[46] is/are planned to include carbon capture equipment, allowing for the reuse of carbon dioxide, e.g. in biofuel production.

As for the state of implementation, measure 507 is considered *planned*. The potential start year is 2025. The aim is the plant(s) to reach the full capacity in 2030, redirect 100,000 tonnes of organic waste per year to the incineration plant(s) instead of landfill.

[45] *Decision of the EEA Joint Committee No 29/2022*. https://www.efta.int/sites/default/files/documents/[...].pdf
[46] A preliminary project report revealed that single incineration plant with higher capacity (140 kt) is possibly more cost-effective than of two smaller plants with lower capacity (Helguvík with 80 kt and Dysnes with 20 kt).

The Ministry of the Environment, Energy and Climate is responsible for overseeing the implementation of measure 506, with the Icelandic SORPA bs. and Icelandic Association of Local Authorities as key implementing entities.

Measure 507 is included of WAM projection scenario in the Waste sector. It is quantified with measures 505 and 506 (see section 3.8.5.1).

3.8.8 Green Solutions in Wastewater Management (508)

Measure 508 involves a collaborative project for green solutions in wastewater management in Iceland. The aim is to minimise the amount of organic by-products ending up in sewers and wastewater receivers (e.g. ocean), which is in line with the objectives of Icelandic River Basin Management Plan (*Vatnaáætlun Íslands*) 2022-2027[47].

As for the state of implementation, measure 508 is considered *adopted*. The potential start year is 2025. The project is complex due to the current state of technological development, making it important to continue working on it and implementing it in close cooperation with stakeholders. The Ministry of the Environment, Energy and Climate is responsible for overseeing the implementation.

3.8.9 Infrastructure Development for Wastewater Treatment (509)

Measure 509 focuses on improving wastewater treatment in Iceland through state financial support to infrastructure development in specific urban centres managed by municipalities (Hafnarfjörður, Greater Reykjavik, Keflavík/Njarðvík, Akranes, Dalvík, Akureyri, Vestmannaeyjar, Grindavík and Þorlákshöfn). The aim is improved wastewater treatment in each location to reach its full capacity by 2030.

Improvement of wastewater treatment is in line with the objectives of Icelandic River Basin Management Plan (*Vatnaáætlun Íslands*) 2022-2027[48] and the recommendations from EFTA which has pointed out that Iceland does not meet the minimum requirements for wastewater treatment.

[47] *The Icelandic River Basin Management Plan 2022-2027*. https://ust.is/library/sida/haf-og-vatn/[...].pdf
[48] *The Icelandic River Basin Management Plan 2022-2027*. https://ust.is/library/sida/haf-og-vatn/[...].pdf

3.9 Cross-cutting

The measures from the Climate Action Plan (2024) which are cross-cutting and will affect more than one of the sectors presented in the previous chapters are listed in Table 3.21 below. Short descriptions of each policy or measure are provided, with more information on all the measures provided in separate subchapters below. Currently, the majority of the policies have been implemented, although none of them have been quantified or included in the WEM projections scenario.

Please note that some measures that were defined as cross-cutting measures in the Climate Action Plan (2024) have been assigned to specific sectors in this report. Cross-cutting measures that are still at the idea-stage are presented in Annex A and projects to support climate actions are in Annex B.

Table 3.21. Cross-cutting Policies and Measures.

PaM ID / Nation. ID	Name / Entity responsible	Objective: GHG	Type of instrument	Start year	Status	Scenario: Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	2055
701 S.2.A.5.	**Supporting implementation of actions under the 2030 Roadmap to Eco-friendly Construction**	100% of defined actions completed.										Not included
	Ministry of Infrastructure	CO_2	Planning, Education, Agreements, Regulatory, Research	2022	Implemented	Estimate of impact not available.						
702 Þ.1.A.1.	**Income-tax incentives for climate-friendly investment**	To promote investment in environmentally friendly assets over polluting assets. The incentive is intended to make climate-friendly options more realistic for investment decisions.										Not included
	Ministry of Finance and Economic Affairs	CO_2	Fiscal, Regulatory	2021	Implemented	Estimate of impact not available.						
703 Þ.1.A.2.	**Implementing European standards on a sustainable financial market**	To guide the financial system towards sustainable investment.										Not included
	Ministry of Finance and Economic Affairs	Various GHGs	Regulatory, Fiscal	2023	Implemented	Estimate of impact not available.						
704 Þ.1.A.6.	**Incentive for carbon offsetting**	To increase carbon sequestration and reduce emissions by means of carbon offsetting.										Not included
	Ministry of Finance and Economic Affairs	CO_2, CH_4, N_2O	Fiscal	2021	Implemented	Estimate of impact not available.						
705 Þ.1.A.7.	**Support for targeted use of European funds**	Grants received to be at least equal to the amount contributed by the government to foreign grant funds for climate issues.										Not included
	Ministry of the Environment, Energy and Climate	Various GHGs	Economic	2021	Implemented	Estimate of impact not available.						
706 Þ.1.A.9.	**Sustainable financing of the treasury**	To support sustainable treasury investment.										Not included
	Ministry of Finance and Economic Affairs	Various GHGs	Fiscal, Agreements	2021	Implemented	Estimate of impact not available.						

PaM ID Nation. ID	Name Entity responsible	Objective GHG	Type of instrument	Start year	Status	Scenario Estimate of mitigation impact (not cumulative, kt CO_2e) 2025	2030	2035	2040	2045	2050	2055
707 Þ.1.B.1.	**More climate-friendly public procurement and construction projects**	To reduce the state's carbon footprint through public procurement and practical projects.										Not included
	Ministry of Finance and Economic Affairs	CO_2	Regulatory, Fiscal	2021	Implemented	Estimate of impact not available.						

3.9.1 Supporting Implementation of Actions under the 2030 Roadmap to Eco-Friendly Construction (701)

The measure is to support the strategy and action plan for eco-friendly construction, drafted by 'Building a greener future' (Byggjum grænni framtíð), a cooperation platform between the government and the business world.

To reduce the environmental impact of the Icelandic construction industry, a specific measure was defined in the government's climate action plan from 2020 (measure C.3). Based on this, a collaboration platform between the government and the business sector for sustainable construction was established in September 2020, named Building a Greener Future (Byggjum grænni framtíð). Based on this collaboration, a Roadmap for Sustainable Construction 2030 was developed and finally published in 2022. About 200 experts from the entire value chain of the construction sector participated in this work in one way or another.

In the roadmap, emissions from Icelandic buildings were assessed for the first time over their entire lifecycle, regardless of where the emissions originate. The roadmap also set goals for a 43% reduction in greenhouse gas emissions from buildings by 2030 and defined 74 actions in six categories to achieve these goals. About 30 institutions, municipalities, associations, and companies are responsible for the actions. The first four action categories reflected the phases of lifecycle assessments, i.e., building materials, construction sites, building use, and end of life. The fifth action category concerned design and planning, and the sixth included actions that provided incentives for transition. The roadmap clearly states that success will not be achieved solely with these 74 actions - stakeholders within the entire value chain of the construction sector must identify their opportunities in sustainable construction and implement them. At the end of year 2024, 40 actions had been completed, and 5 actions had been revaluated[49]. The project management of Building a Greener Future meets monthly. It includes representatives from the Federation of Icelandic Industries, Green Building Council Iceland, the Icelandic Road and Coastal Administration (IRCA), the IEEA, the Association of Local Authorities in Iceland, Sorpa, the City of Reykjavík, MI, MEEC and Housing and Construction Authority.

3.9.2 Income-Tax Incentives for Climate-Friendly Investment (702)

Incentive consisting of a reduction in income tax for investment in 'green' liquid assets that are considered climate friendly. The incentive is valid until the end of 2025 and will be reviewed with the aim of making it more targeted.

The tax incentive for climate-friendly investments will be reviewed with the aim of making it more efficient and targeted. The measure, which is already implemented, is intended to create incentives to invest in environmentally friendly operational assets. The implementation allows for the purchase price (initial value) to be increased by a certain percentage in tax returns, and this initial value forms the basis for depreciation

[49] Building a Greener Future (2025). See https://byggjumgraenniframtid.is/40-adgerdum-lokid-i-vegvisinum-ad-vistvaenni-mannvirkjagerd-vid-arslok-2024/

(deduction). For example, if an asset is purchased for 10 million ISK and the increase (depreciation surcharge) is 25%, then 12.5 million ISK is recorded as the initial value. The initial value can be depreciated (deducted) by a certain percentage each year depending on the type of liquid assets, but generally, it is allowed to depreciate between 10-35% of the initial value. The depreciation surcharge thus creates a higher base from which depreciation (deduction) is calculated, thereby reducing the tax base each year. The measure is particularly useful for companies that have a tax base or foresee a tax base in the next 10 years.

The most challenging task is to define which assets are considered environmentally friendly (green), and this definition must consider the climate benefits of the respective investments.

3.9.3 Implementing European Standards on a Sustainable Financial Market (703)

European standards intended to underpin a sustainable financial market need to be implemented to give access to more favourable credit terms for climate-friendly solutions.

The European Union places a strong emphasis on sustainability, including significantly reducing greenhouse gas emissions. Part of this is directing the financial system increasingly towards sustainable investments. The Union has adopted or is preparing several important regulations aimed at this goal, which the Icelandic government aims to implement in a timely manner. Among them are regulations concerning the classification and disclosure of the sustainability of business activities and the issuance of green bonds.

The classification regulation (EU taxonomy) is a kind of checklist that companies and investors can use to determine whether business activities align with the EU's environmental objectives and are classified as "green." The regulation provides a harmonized definition of what constitutes environmentally sustainable business activities.

3.9.4 Incentive for Carbon Offsetting (704)

Contributions to activities supporting carbon offsetting (e.g. forestry, land revegetation, wetland reclamation, and carbon capture and disposal) are to a certain extent deductible from corporate income tax.

Since 2020, donations and contributions to carbon sequestration actions have enjoyed tax support in the form of a corporate income tax deduction that can amount to up to 1.5% of their revenues. This incentive will remain in place, and ways to increase its utilisation will be explored.

3.9.5 Support for Targeted Use of European Funds (705)

Information and targeted support for stakeholder applications to the European Fund for sustainable solutions contributing to a reduction in emissions.

Support for innovation and sustainable development in Iceland will be provided in a targeted manner. On one hand, it is necessary to ensure access to foreign grant funds that are most relevant to necessary innovation in Iceland, and on the other hand, to support

stakeholders in applying for appropriate funds in a targeted manner. This support can be implemented by increasing support for Rannís to fulfil this role in an informed and efficient manner in the coming years, and Rannís already has a cooperation agreement with the Ministry of Environment, Energy and Climate. The relevant party needs to be proactive in their work and seek out necessary solutions where opportunities for reduction are greatest. Such work must be based both on reduction possibilities and government climate policies, such as the climate action plan, the government's dialogue with industries, and the energy transition policy. Once the projects are defined, it is important to:

- Implement the government's financial contribution, including the government's share versus the stakeholders' contribution, along with conditions.
- Connect owners and stakeholders of innovation solutions with experts in grant applications.
- Define the source of the government's financial contribution.
- Provide financial contributions for grant applications.

In this way, the government's contribution to international competitive funds for innovation and climate solutions can be extended, and it will also further emphasize the message to the university, research, and innovation environment about the necessary climate solutions.

3.9.6 Sustainable Financing of the Treasury (706)

The national treasury has issued a green bond and will submit an annual report on the impact of individual expenditure items until the proceeds of the issue have been fully allocated. Further issuance of green bonds may be considered if it supports other goals in the action plan.

The government finances clearly defined green/sustainable projects in Iceland through the issuance of green government bonds. The issuance is intended to send a clear message to investors about the importance of environmental issues and how the financial market can be used to address the climate crisis. Green bond issuance is in most respects like the issuance of other bonds, but the proceeds from such issuance go directly to specific environmentally friendly projects. The issuance of green bonds in international markets has increased in recent years, and with increased public awareness, there has been pressure on investors to direct funds to projects aimed at contributing to long-term environmental and climate goals. The framework for sustainable financing issued by the Ministry of Finance and Economic Affairs in 2021 was updated and reissued in April 2023. This framework includes green projects, social projects, and projects that promote equality. A selection committee has been appointed to select projects that align with the defined priorities in the framework and form the basis for sustainable bond issuance. The committee is led by the Ministry of Finance and Economic Affairs and includes representatives from the Prime Minister's Office, the Ministry of Social Affairs and Labour, the Ministry of Health, the Ministry of Food, the Ministry of Environment, Energy, and Climate, and the Ministry of Foreign Affairs. The government issued a green bond under the financing framework in March 2024.

3.9.7 More Climate-Friendly Public Procurement and Construction Projects (707)

This action is a continuation of the previous action on sustainable procurement policy and involves coordination with actions in the field of civil engineering, more incentives for bidders, and a more targeted presentation of performance metrics and data.

The policy on sustainable procurement took effect in 2021, and its performance indicator has been the number of tenders requiring where environmentally friendly procurement is the general rule, the performance indicator being the proportion of tenders with environmental conditions. However, there is still room for improvement, and it is proposed that the following steps be taken to increase market incentives to offer and develop more environmentally friendly solutions:

- issuance of a new action plan for sustainable procurement
- development of data sets and presentation
- specific criteria for procurements with a high carbon footprint, in cooperation with the market
- strengthening the position of the Government Purchasing Department (Ríkiskaup) to implement the action plan.

4 Projections

4.1 Methodology Overview

The methodologies used to calculate greenhouse gas projections are consistent with Iceland's 2025 Nacional Inventory Document. For information on the sectoral methods see Iceland's NID (2025). Methodologies for projections for each sector are described in the sectoral chapters 4.5-4.10.

4.2 Total Emission Projections

Iceland's total historical and projected emissions of greenhouse gases are presented in Table 4.1 and Figure 4.1 below, showing the WEM and WAM scenarios, both including and excluding LULUCF. WAM scenarios are reported for Energy, Agriculture and Waste, but not for IPPU and LULUCF where the WEM and WAM scenarios are identical.

The total emissions reached their peak in 2008 and are expected to follow a downward trend until 2055. Iceland's total greenhouse gas emissions, including LULUCF, are projected to be 22.5% lower in 2055 than they were in 1990 in the WEM scenario and 22.9% lower in the WAM scenario. Emissions excluding LULUCF are projected to be 22.9% lower in 2055 than they were in 1990 in the WEM scenario and 24.0% lower in the WAM scenario.

Table 4.1. Total historical and projected emissions for WEM and WAM scenarios, both including and excluding LULUCF [kg CO_2e].

	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
Total emissions with LULUCF										
WEM [kt CO_2e]	11,850	12,221	12,631	12,613	12,223	11,747	11,193	10,520	9,811	9,180
WAM [kt CO_2e]	11,850	12,221	12,631	12,598	11,987	11,478	10,963	10,339	9,744	9,138
Absolute difference [kt CO_2e]	-	-	-	-15	-236	-269	-230	-181	-67	-42
Proportional difference [%]	-	-	-	-0.1%	-1.9%	-2.3%	-2.1%	-1.7%	-0.7%	-0.5%
Total emissions without LULUCF										
WEM [kt CO_2e]	3,707	4,129	4,646	4,634	4,393	4,084	3,685	3,321	3,023	2,858
WAM [kt CO_2e]	3,707	4,129	4,646	4,619	4,156	3,816	3,455	3,140	2,955	2,816
Absolute difference [kt CO_2e]	-	-	-	-15	-236	-269	-230	-181	-67	-42
Proportional difference [%]	-	-	-	-0.3%	-5.4%	-6.6%	-6.2%	-5.4%	-2.2%	-1.5%

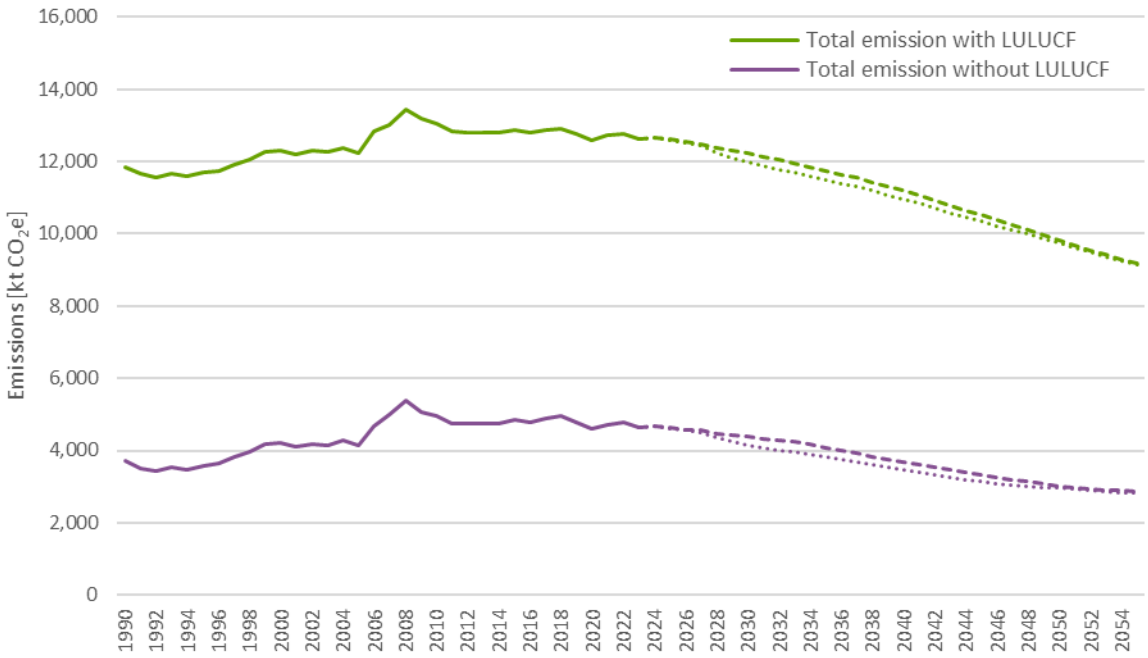

Figure 4.1. Total historical and projected emissions for WEM and WAM scenarios, both including and excluding LULUCF, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

4.3 Emission Projections by Sector

Iceland's total historical and projected emissions of greenhouse gases for all sectors are presented in Table 4.2 and Table 4.3 for the WEM and WAM scenarios, respectively. No WAM scenario is reported for IPPU and LULUCF and therefore those sectors are identical for both scenarios.

Table 4.2. Total historical and projected GHG emissions by sector for the WEM scenario 1990-2055, [kt CO_2e].

Sector	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
1 Energy	1,841	2,159	1,774	1,800	1,659	1,404	1,036	701	424	281
2 IPPU	902	950	1,946	1,966	1,910	1,883	1,886	1,886	1,886	1,885
3 Agriculture	757	711	692	687	676	666	652	640	629	616
4 LULUCF	8,142	8,092	7,985	7,979	7,831	7,662	7,508	7,198	6,789	6,322
5 Waste	207	309	233	180	148	131	111	95	84	76
Total, without LULUCF	3,707	4,129	4,646	4,634	4,393	4,084	3,685	3,321	3,023	2,858
Total, with LULUCF	11,850	12,221	12,631	12,613	12,223	11,747	11,193	10,520	9,811	9,180

Table 4.3. Total historical and projected GHG emissions by sector for the WAM scenario 1990-2055 [kt CO_2e].

Sector	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
1 Energy	1,841	2,159	1,774	1,788	1,441	1,166	840	553	388	270
2 IPPU	902	950	1,946	1,966	1,910	1,883	1,886	1,886	1,886	1,885
3 Agriculture	757	711	692	684	661	651	637	625	615	602
4 LULUCF	8,142	8,092	7,985	7,979	7,831	7,662	7,508	7,198	6,789	6,322
5 Waste	207	309	233	181	145	115	92	76	66	59
Total, without LULUCF	3,707	4,129	4,646	4,619	4,156	3,816	3,455	3,140	2,955	2,816
Total, with LULUCF	11,850	12,221	12,631	12,598	11,987	11,478	10,963	10,339	9,744	9,138

Figure 4.2 show the historical emissions (solid line) for all sectors from 1990-2023 and projected emissions from 2024-2055, where the dashed line represents WEM emissions and the dotted line represents WAM emissions. As can be seen the LULUCF sector dominates emissions in Iceland, therefore Figure 4.3 show emissions without LULUCF.

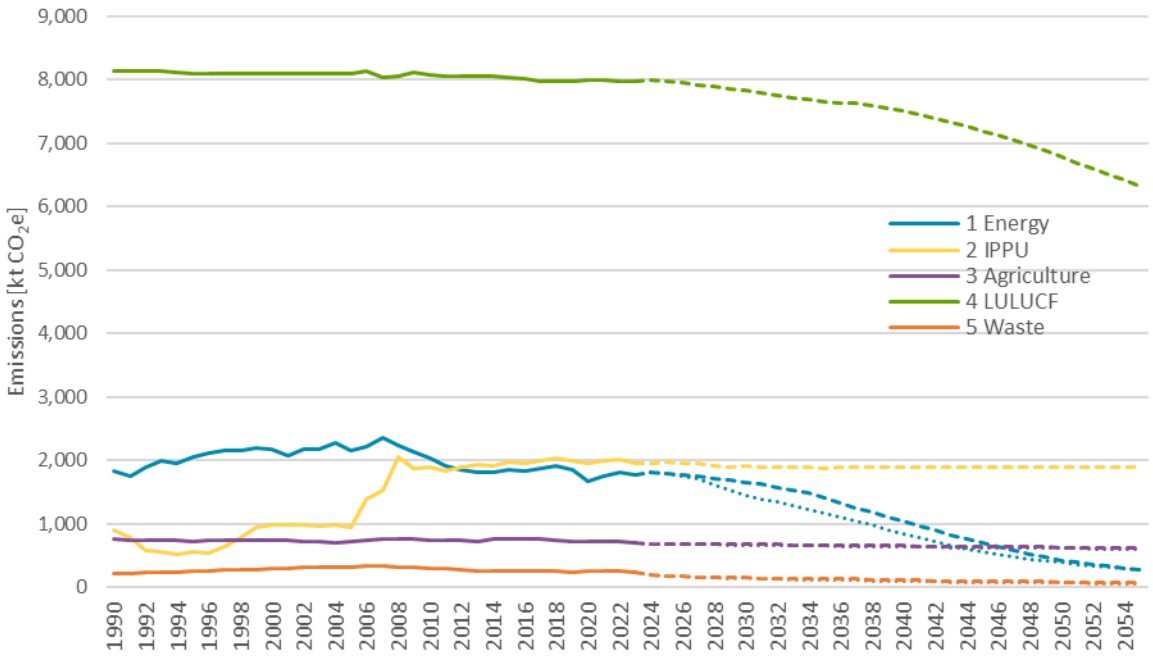

Figure 4.2. Total historical and projected emissions for WEM and WAM scenarios for all sectors, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

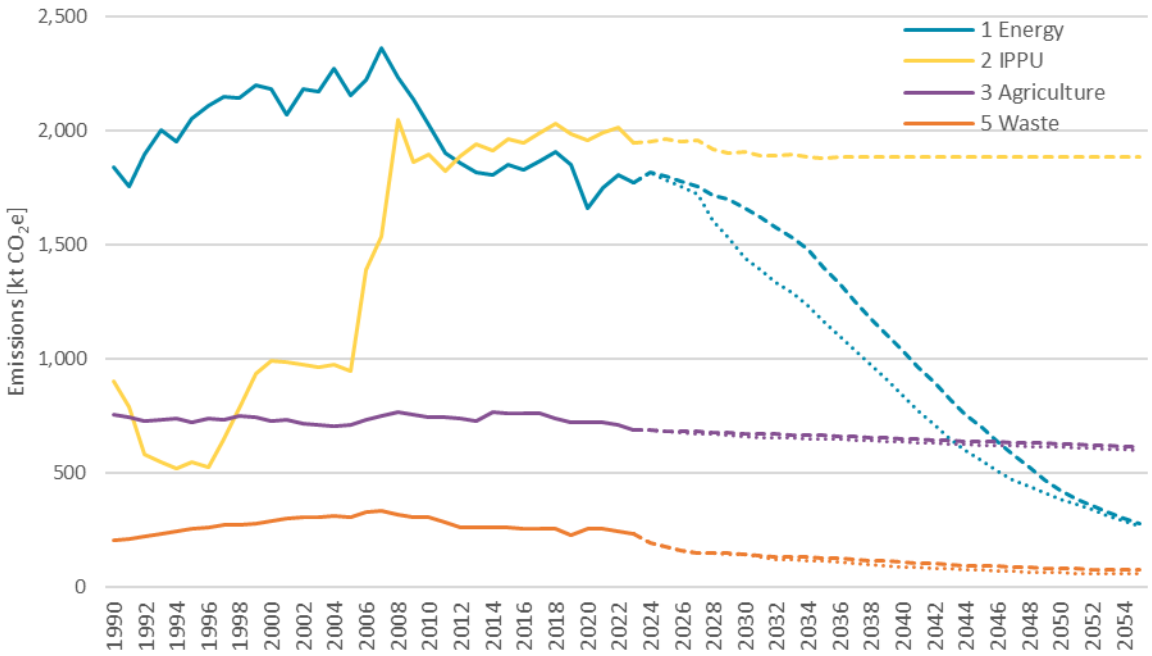

Figure 4.3. Total historical and projected emissions for WEM and WAM scenarios for all sectors except LULUCF, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

The total emissions have increased from 1990 to 2023, mostly due to increased metal production in Iceland. They are projected to decrease in the coming decades and go below 1990 levels in 2035.

The main cause for the projected decrease in emissions from the **Energy** sector is the impact of the energy transition in Road Transportation, which is changing rapidly from predominantly fossil fuel vehicles to electric vehicles, as well as a substantial decrease in emissions from fishing due to continued increased efficiency in fishing practices as well as energy transition in later years. **IPPU** will mainly change because of a projected decrease in emissions from F-gases, due to implemented F-gas regulations, which limits the import of F-gases and taxes to F-gases imported in bulk. Emissions reductions from IPPU will remain relatively low, however, due to no significant changes in emissions from the Metal Industry. **Agriculture** emissions are expected to decrease, mainly because of decrease in sheep and dairy cattle population numbers, as well as a due to reduced fertiliser use. **LULUCF** emissions are predicted to decrease steadily due to increased carbon sequestration in forests. **Waste** emissions are expected to decrease sharply over the next years. The main reason is the landfill site serving the capital area stopped landfilling most waste other than inert waste in 2023. All mixed waste from the capital area is now exported for incineration. The nation-wide separate collection of food waste, paper, and plastics from 2023 and the ban on landfilling separately collected waste plays a large role.

The difference in WEM and WAM scenarios are due to several measures in the Energy, Transport, Agriculture and Waste sectors. A summary of those measures can be seen in Table 4.4, but more information on them can be found in chapters 3.3-3.8 with a more detailed quantification of each.

Table 4.4. Summary of additional measures included in the WAM scenario and their 2030 emission reduction.

Sector	PaM ID	Name	2030 Emission reduction [CO_2e]
Energy	102	Green back-up power for industry and society	-3.2
Transport	207	Public transport running on clean energy between Greater Reykjavik and KEF	Estimate of impact not available
Transport	211	Progressively more stringent requirement for the share of renewable energy sources in land transport	-64
Transport	213	Phasing out petrol and diesel vehicles in Iceland	-109
Transport	214	Banning new registrations of group and freight vehicles powered by fossil fuels in 2035	0
Transport	222	Minimum share of renewable energy in fishing vessels and domestic navigation	-49
Transport	228	A phased requirement for a minimum share of sustainable aviation fuel	-83
Agriculture	403	Implementation of an obligation to submit information on fertiliser and liming needs	Included in measure 404
Agriculture	404	Support for the introduction of technology for precision distribution of fertilisers	-21
Agriculture	405	Support for farmers for measures to reduce fertiliser needs	Included in measure 404
Waste	505	Ban on landfilling of organic waste	Included in measure 506
Waste	506	Collaborative project on developing a bioenergy plant	-3.4
Waste	507	Collaborative project for developing incineration plant(s)	Included in measure 506

4.4 Emissions by Commitment Categories (ESR/ETS)

The Decision of the EEA Joint Committee No 29/2022 amending Protocol 31 to the EEA Agreement (JCD 29/2022) sets out the annual emission allocations (AEAs) for the period 2021 to 2030 and states the ESR emission number for 2005 which those AEAs are based on. The AEAs, and the 2005 ESR emission figure, were calculated according to Art. 4 of Regulation (EU) 2018/842 as incorporated into the EEA Agreement with JCD 269/2019.

Total emissions in Iceland (excl. LULUCF) can be split into Effort sharing (ESR) and EU emission trading system (ETS). The split between ESR and ETS can be seen in Table 4.5 and Figure 4.4. In recent years ETS has accounted for approximately 40% of emissions (excl. LULUCF) in Iceland.

Table 4.5. Historical and projected emissions for ETS and ESR [kt CO_2e].

	2005	2023	2025	2030	2035	2040	2045	2050	2055
ETS WEM emissions	853	1,813	1,851	1,864	1,864	1,864	1,862	1,861	1,860
ESR WEM emissions	3,250[1]	2,811	2,757	2,500	2,194	1,805	1,455	1,161	998
ESR WAM emissions	3,250[1]	2,811	2,742	2,265	1,930	1,580	1,276	1,094	956

[1] The ESR JCD figure for 2005 is 3,109 kt CO_2e., as stated in JCD 29/2022. See explanation in 4.4.2.1.

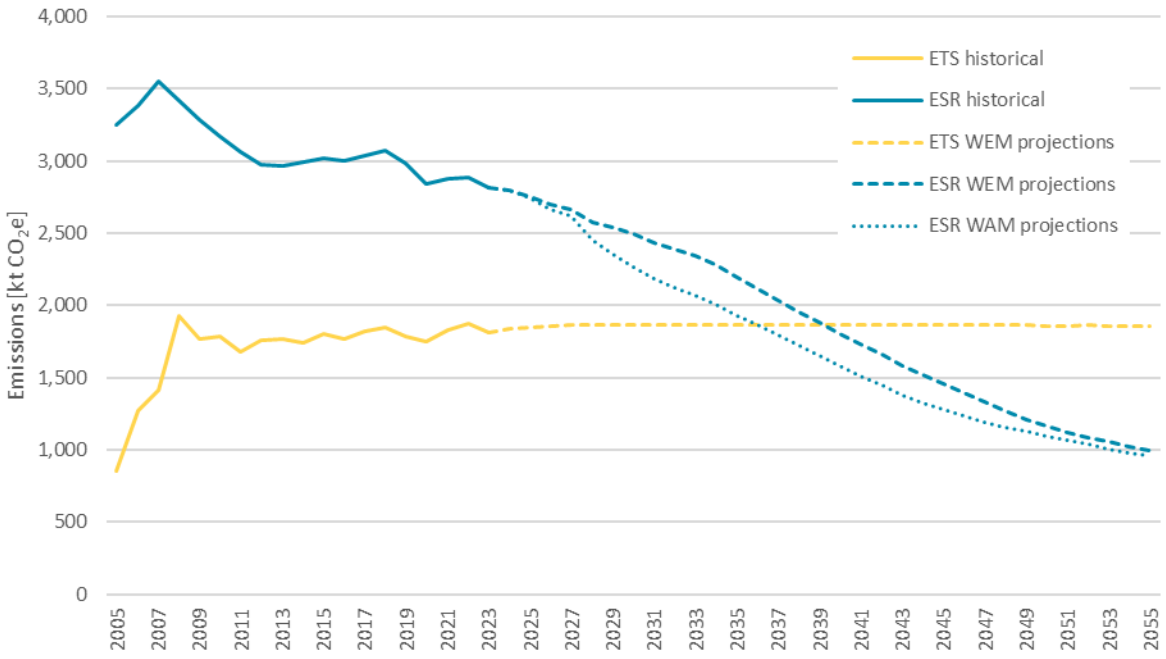

Figure 4.4. Historical and projected emissions for ETS and ESR.

4.4.1 ETS Emission Projections

In Iceland, industrial emissions from the Metal Industry (2C) and the Production of Iron and Steel (Iron alloys and silicon metal – 1A2a) and Non-Ferrous Metals (Aluminium - 1A2b) are covered by the EU ETS. Only a WEM scenario is reported for those sectors.

As can be seen in Figure 4.5, emissions from ETS industry have remained reasonably steady from 2015 and are projected to remain steady until 2055. Iceland relies almost only on renewable energy for electricity production and therefore the Energy ETS emissions have been below 1% of total ETS emissions in recent years and are projected to continue to remain low, as can be seen in Table 4.5.

Table 4.6. Historical and projected emissions for ETS emissions by sector, WEM scenario [kt CO_2e].

	2005	2023	2025	2030	2035	2040	2045	2050	2055
IPPU ETS emissions	822	1,807	1,845	1,859	1,859	1,860	1,859	1,859	1,859
Energy ETS emissions	31	5.5	6.0	5.6	5.1	4.4	3.6	2.5	1.2
Total ETS emissions	853	1,813	1,851	1,864	1,864	1,864	1,862	1,861	1,860

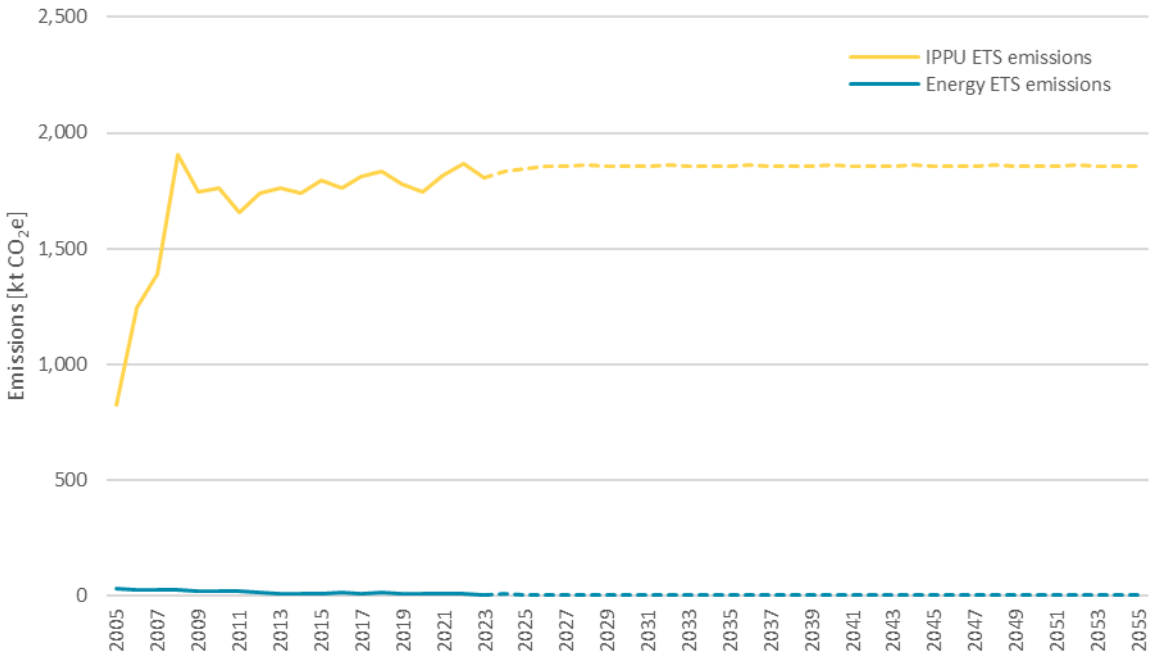

Figure 4.5. Historical and projected emissions for ETS emissions by sector, WEM scenario.

4.4.2 ESR Emission Projections

ESR emissions are projected to decrease significantly during the next decades. In the Wem scenario it is estimated to decrease by 69% by 2055 compared to 2005 and by 71% in the WAM scenario, see Table 4.7 and Table 4.8 and Figure 4.6 and Figure 4.7. The largest emission reductions are projected to be in the Energy sector where emissions are expected to decrease by 87% in 2055 compared to 2005 in both scenarios. Proportionally

high emission reductions can also be observed in the IPPU and Waste sectors where the reduction is predominantly derived from reduced F-gas imports and reduced landfilling of biodegradable waste, respectively. Lower emission reductions occur in Agriculture.

Table 4.7. ESR emission projections by sector for WEM scenario [kt CO_2e].

Sector	2005	2023	2025	2030	2035	2040	2045	2050	2055
1 Energy	2,101	1,747	1,768	1,625	1,372	1,016	693	420	280
2 IPPU	128	139	121	51	25	26	27	27	27
3 Agriculture	711	692	687	676	666	652	640	629	616
5 Waste	309	233	180	148	131	111	95	84	76
ESR WEM total	3,250	2,811	2,757	2,500	2,194	1,805	1,455	1,161	998

Table 4.8. ESR emission projections by sector for WAM scenario [kt CO2e].

Sector	2005	2023	2025	2030	2035	2040	2045	2050	2055
1 Energy	2,101	1,747	1,756	1,409	1,139	825	547	386	269
2 IPPU	128	139	121	51	25	26	27	27	27
3 Agriculture	711	692	684	661	651	637	625	615	602
5 Waste	309	233	181	145	115	92	76	66	59
ESR WAM total	3,250	2,811	2,742	2,265	1,930	1,580	1,276	1,094	956

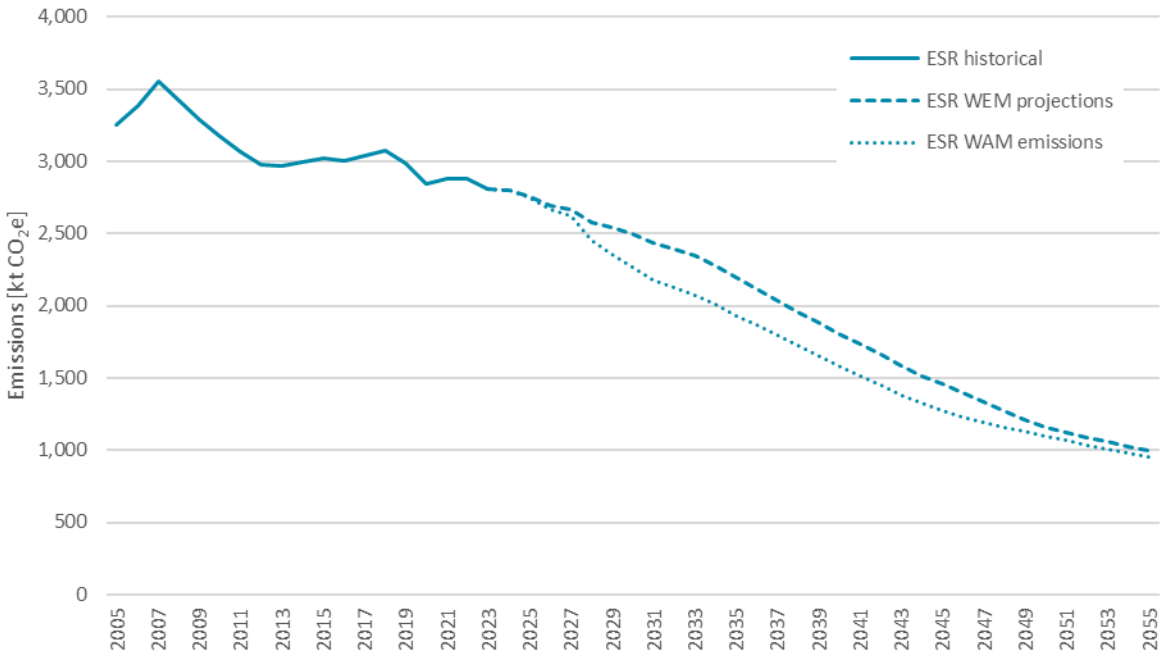

Figure 4.6. ESR historical and projected emissions for WEM and WAM scenarios [kt CO_2e].

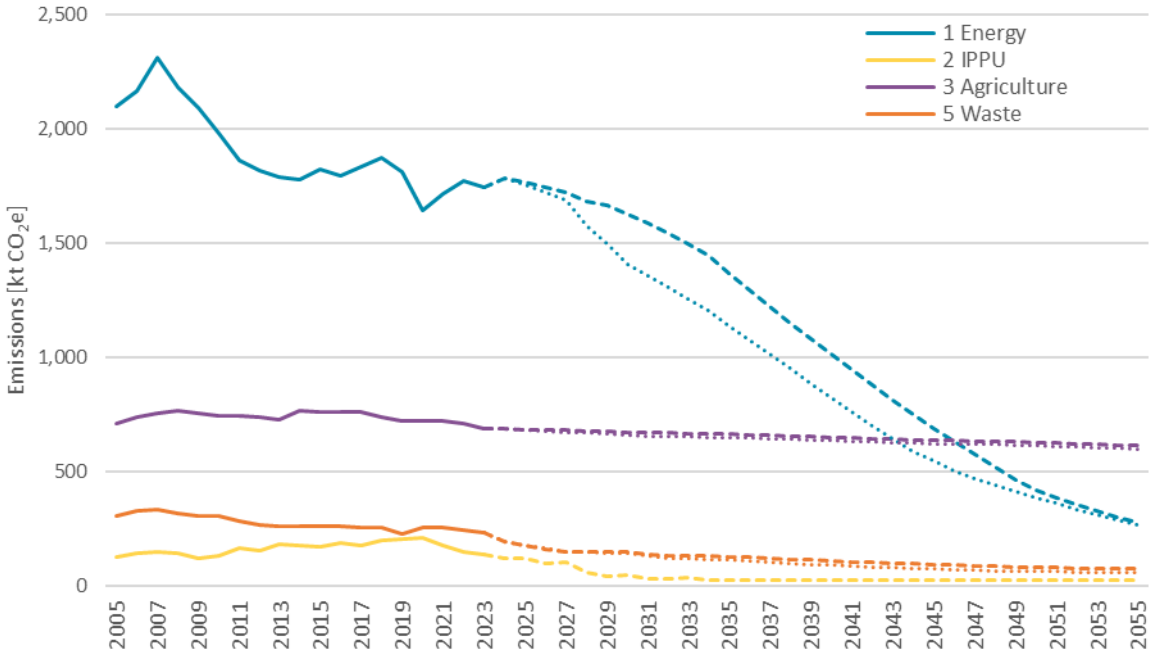

Figure 4.7. ESR historical and projected emissions by sector for WEM and WAM scenarios [kt CO_2e], dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

4.4.2.1 ESR Emission and Annual Emission Allocations (AEAs)

The projected ESR emissions in the WEM scenario for the year 2030 amount to 2,500 kt CO_2e., which corresponds to 20% lower emissions compared to 2005, based on Iceland's commitment stated in JCD 29/2022.

The projected ESR emissions in the WAM scenario for the year 2030 amount to approximately 2,265 kt CO_2e. which corresponds to 27% lower emissions compared to 2005. Iceland's current commitment for the year 2030 is to decrease ESR emissions by 29% under the ESR, which is reflected in the AEAs.

As can be seen in Table 4.9 it is projected, in both scenarios, that Iceland will have more emissions than AEAs in the years 2021-2030. This is also presented in Figure 4.8.

Table 4.9. ESR emissions for the WEM and WAM scenario for 2021-2030 compared to annual emission allocations (AEAs) [kt CO_2e].

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
ESR WEM emissions	2,880	2,883	2,811	2,798	2,757	2,696	2,665	2,576	2,538	2,500
ESR WAM emissions	2,880	2,883	2,811	2,798	2,742	2,668	2,622	2,455	2,353	2,265
AEAs	2,876	2,803	2,730	2,657	2,584	2,510	2,437	2,364	2,291	2,218
Difference in AEAs and WEM	-4	-80	-81	-142	-173	-186	-227	-212	-247	-282
Difference in AEAs and WAM	-4	-80	-81	-141	-159	-157	-185	-91	-63	-48

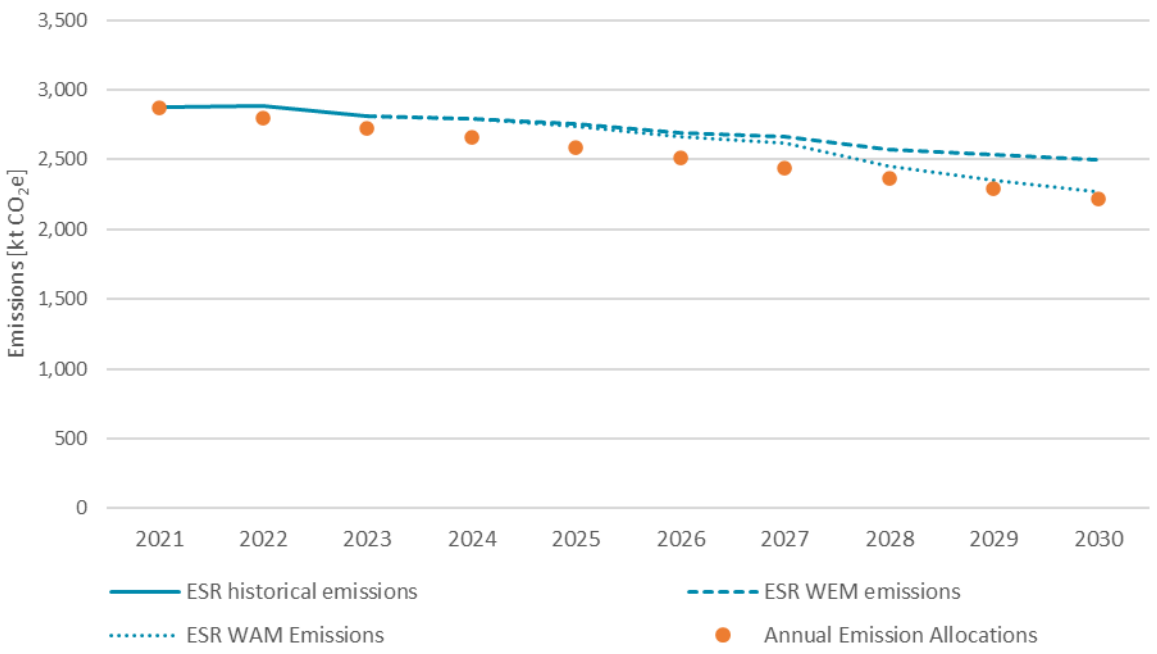

Figure 4.8. ESR emissions for the WEM and WAM scenario for 2021-2030 compared to annual emission allocations (AEAs).

It should be noted that the 2005 ESR emission figure of 3109 kt CO_2e., as stated in JCD 29/2022, differs from the calculated ESR emissions in the inventory. This is because the inventory is reviewed and updated regularly, for instance when updated activity data becomes available, or a more refined or appropriate methodology is used. This can cause changes in emission values for a part of or all the time series. In contrast, the 2005 ESR number as per JCD 29/2022 is "set in stone" and, therefore, discrepancies occur between the ESR official 2005 figure and the inventory calculations. When comparing projected emissions to AEAs or to the ESR target, it is deemed more useful to use the official 2005 number stated in JCD 29/2022 since the 2030 target is based upon that number.

4.5 Energy (excluding Transport)

The Energy Sector (1) contains all emissions from fuel combustion, energy production, and distribution of fuels. Emission from transport (mobile sources) is reported in a separate chapter. The sectors reported in this chapter are:

- 1A1 Energy industries
- 1A2 Manufacturing industries and construction
- 1A4a Commercial/Institutional
- 1A4b Residential
- 1A5 Other
- 1B Geothermal and oil distribution

These sectors have accounted for 15-20% of emissions from the energy sector in Iceland in recent years. Iceland almost exclusively uses renewable energy sources (hydropower, geothermal energy, and wind power) for electricity and heat production, and therefore emissions from Energy Industries (1A1) are low (< 1% of Iceland's emission from Energy including transport) compared to other countries that utilise a higher share of fossil fuels. A small proportion of the emission from this sector fall under EU ETS, or approximately 4% in recent years, but all the other emissions fall under the ESR.

The projections for the Energy sector are based on the energy forecast which were done by the Icelandic Environment and Energy Agency, except for geothermal projections which are based on information from the geothermal operators in Iceland.

The impact of six measures (103, 104, 105, 106, 108 and 109) in the energy sector (see details about each measure in chapter 3.3) is represented in the WEM scenario in this report. One additional measure is included in the WAM scenario, which has also been quantified (see Table 3.1), that is measure *102 Green back-up power for industry and society*.

4.5.1 Projections for Energy (excl. transport)

The projections for Energy (excl. transport) include both a WEM and WAM scenario. The projections, and the difference between the scenarios, can be seen in Table 4.10 and Figure 4.9.

Emissions from the Energy Sector (excl. transport) have decreased by 27% between 1990 and 2023 and emissions are projected to decrease by 54% in 2055 compared to 1990. The difference between WEM and WAM scenario is 0.3-1.6% over the timeline due to one additional measure in the WAM scenario.

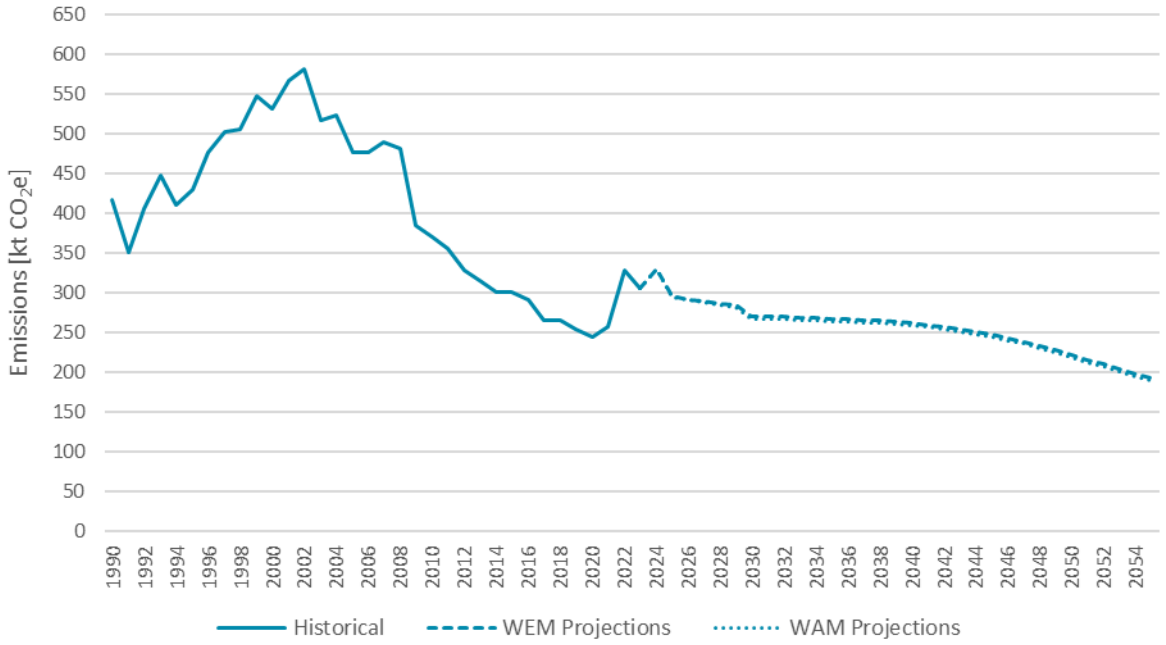

Figure 4.9. Historical and projected emissions for the Energy Sector (excl. Transport) for the WEM and WAM scenario [kt CO_2e]. Solid lines represent historical emissions.

Table 4.10. Historical and projected emissions for the Energy Sector (excl. Transport) for the WEM and WAM scenario including the proportional difference.

	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
WEM Energy [kt CO_2e] (excl. transport)	418	477	306	296	270	268	262	248	223	193
WAM Energy [kt CO_2e] (excl. transport)	418	477	306	296	267	265	259	245	219	190
Absolute difference [kt CO_2e]	-	-	-	-0.9	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2
Proportional difference [%]				-0.3%	-1.2%	-1.2%	-1.2%	-1.3%	-1.4%	-1.6%

Within the Energy sector (excl. Transport) the largest sources are Manufacturing Industries and Construction (1A2) and Geothermal Energy Production (1B2d), as can be seen in

Figure 4.10.

Emissions from Manufacturing Industries and Construction (1A2) have been decreasing in the last decades with a small increase over the past few years which is due to electricity shortage for fishmeal factories which then used fossil fuels instead. These emissions are projected to decrease until 2055.

Emissions from Geothermal Energy (Fugitive Emissions 1B) have historically been increasing but are projected to decrease until 2030 due to increased injections of CO_2 into basaltic rock[50], but remain steady after that. Other sectors are projected to remain relatively steady.

[50] *Carbfix*. https://www.carbfix.com/

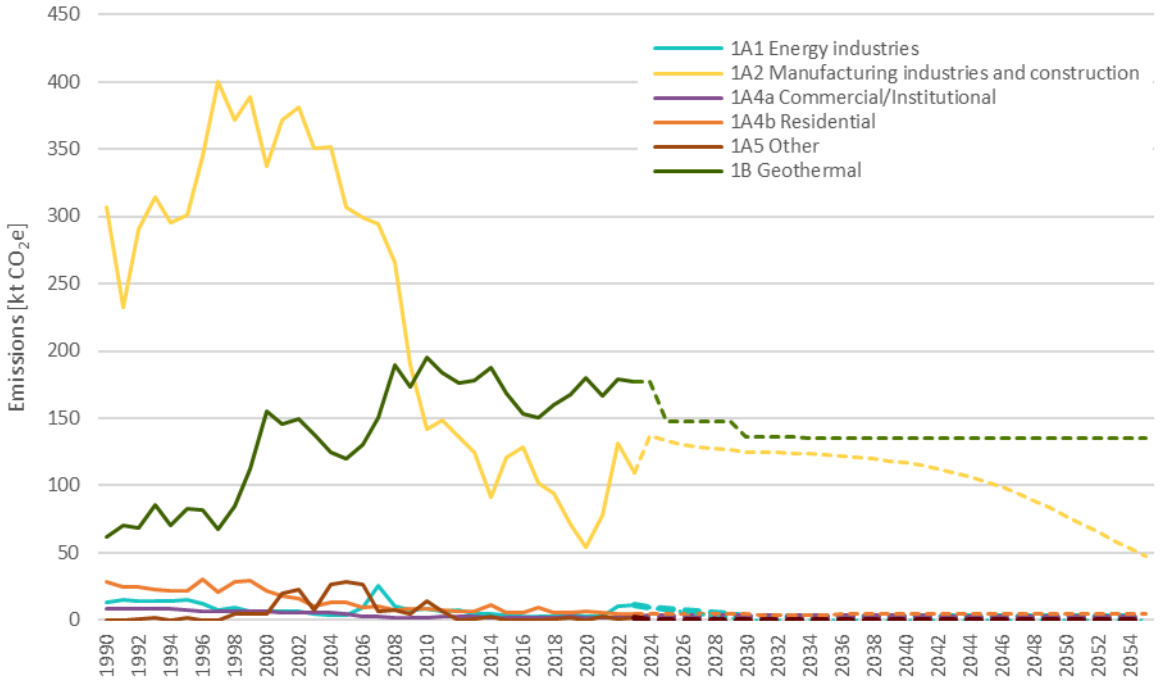

Figure 4.10. Energy (excluding Transport) Emissions of total GHGs, WEM scenario [kt CO_2e].

Table 4.11. Historical and projected WEM emissions in the Energy sector [kt CO_2e].

Sector	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
Energy industries (1A1)	14	3.4	11.0	8.7	3.2	3.2	3.2	3.2	3.2	3.2
Manufacturing industries and construction (1A2)	306	306	110	133	125	123	117	103	77	48
Commercial/ Institutional (1A4a)	8.1	4.9	2.3	2.7	2.5	2.5	2.4	2.2	2.1	2.1
Residential (1A4b)	28	13.1	4.3	4.5	4.2	4.2	4.3	4.3	4.4	4.5
Other (1A5)	0.1	29	1.8	NO	NO	NO	NO	NO	NO	NO
Geothermal and oil distribution (1B)	62	120	177	147	136	136	136	135	135	135
WEM Energy (excl. transport)	**418**	**477**	**306**	**296**	**270**	**268**	**262**	**248**	**223**	**193**

4.5.2 Methodology of Projections

Projections for the energy sector are based on the energy forecast generated by the IEEA, except for emission projections for geothermal power which were mostly obtained directly from the geothermal power companies. Description of the energy forecast is provided in chapter 4.5.2.1. An overview of the data and assumptions used as a basis for the energy projections is presented in Table 4.12.

Table 4.12. Activity data basis for energy projections.

Energy sector	Basis for projections
1.A.1 Energy industries	Energy forecast (2025)
1.A.2 Manufacturing industries and construction	Energy forecast (2025)
1.A.4.a Commercial/ Institutional	Energy forecast (2025)
1A.4.b Residential	Energy forecast (2025)
1.B.2.a Oil distribution	Energy forecast (2025)
1.B.2.d Geothermal	Emission projections from operators of geothermal power plants in Iceland

4.5.2.1 Energy Forecast

The IEEA publishes on an annual basis an energy forecast for Iceland[51]. The forecast for fuel consumption is based on assumptions regarding the development of population, GDP, seafood production, and transportation both domestically and internationally, with tourism playing a significant role. It considers all fuel sales within the country, both to domestic and foreign entities.

Fuel consumption in Iceland is influenced by numerous domestic and international factors, including population size, income levels, industrial output, the composition of the economy, and fuel prices. Economic growth projections are used to assess these factors since many aspects depend on the nation's overall economic performance.

Over the coming decades, fuel consumption is expected to transition from fossil fuels to new energy sources. It is not entirely clear which energy sources will replace fossil fuels in all cases—they could include electricity, geothermal energy, methane, methanol, hydrogen, ammonia, or biofuels derived from biomass such as plants. In some cases, such as automobiles, historical data on the use of alternative energy sources is available and is used to indicate future development. In other cases, where no historical data exists, estimates are made of how much energy demand will shift to electricity, biofuels, or e-fuels.

New energy sources are expected to replace oil to a significant extent during the forecast period, primarily through the adoption of electricity. The volatility in oil markets over the past 15 years has increased the urgency of seeking alternative energy sources. Therefore, calculations for transitioning from fossil fuels to other energy sources have been incorporated into the forecasting model. Initially, the adoption of new energy sources is expected to grow slowly, then increase rapidly once they gain a strong foothold.

[51] Energy forecast: https://orkustofnun.is/orkuskipti/orkuspa_2024

4.6 Transport

The Transport Sector contains all emissions from fuel combustion from mobile sources. The sectors reported in this chapter are:

- 1A3a Domestic Aviation
- 1A3b Road Transportation
- 1A3d Domestic Navigation
- 1A3e Mobile machinery
- 1A4c Fishing and Agriculture
- *1D1a International Aviation*
- *1D1b International Navigation*

There are no railways in Iceland, and therefore, these emissions (1A3c) are reported as not occurring (NO). Emissions from international transport, i.e. aviation and navigation, are projected but they do not count towards the national total and the projections are reported in a separate chapter (4.6.1.1).

Emissions from the transport sector have accounted for 80-85% of the energy sector's (1) total greenhouse gas emissions (excl. international transport) in Iceland in recent years and road transport and fishing are the largest emissions sources.

The projections for the Transport sector are based on the energy forecast which were done by the Icelandic Environment and Energy Agency. The impact of 18 measures (201, 202, 203, 204, 205, 206, 208, 209, 210, 212, 218, 219, 220, 221, 223, 224, 225 and 227) in the transport sector (see details about each measure in chapter 3.4) is represented in the WEM scenario. A WAM scenario for Transport is also reported, which includes six additional measures (207, 211, 213, 214, 222 and 228).

4.6.1 Projections for Transport

Both WEM and WAM projection scenarios are reported for the transport sector, which can be seen in Figure 4.11 and Table 4.13. The difference between WEM and WAM starts to appear in 2025 and reaches a peak in 2045 where the WAM scenario is estimated to result in 31% additional decrease in transport emissions compared to the WEM scenario.

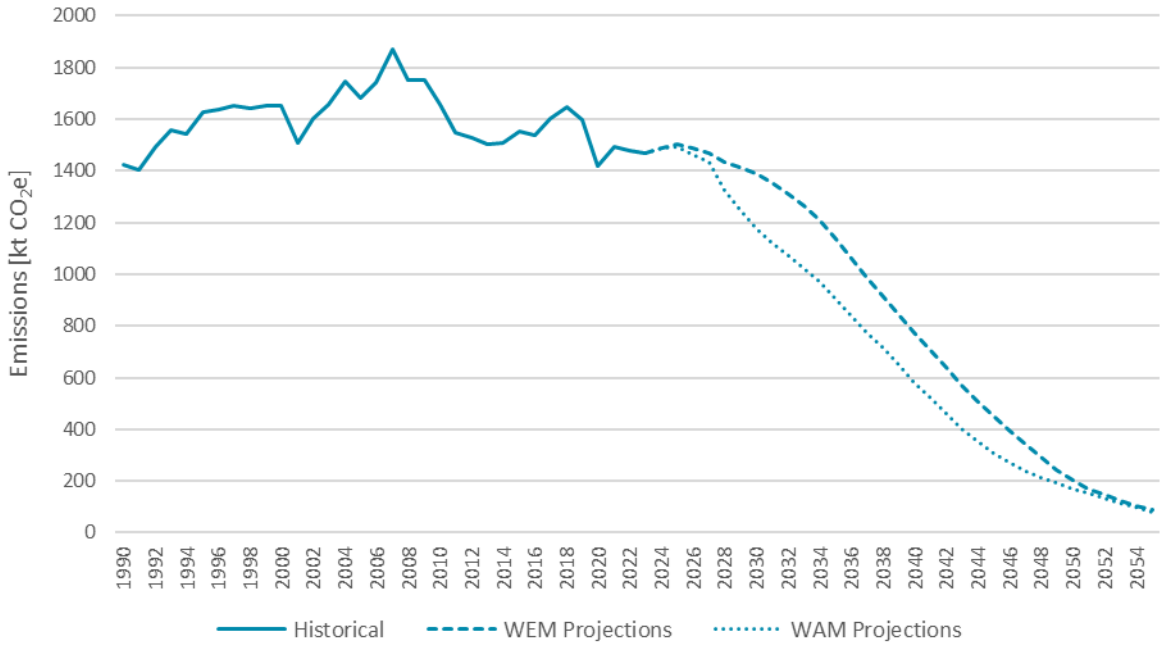

Figure 4.11. Historical and projected emissions for the Transport sector for the WEM and WAM scenario [kt CO_2e]. Solid lines represent historical emissions.

Table 4.13. Historical and projected emissions for the Transport sector for the WEM and WAM scenario including the proportional difference.

	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
WEM Transport [kt CO_2e]	1,422	1,682	1,468	1,504	1,389	1,136	774	453	201	89
WAM Transport [kt CO_2e]	1,422	1,682	1,468	1,492	1,174	901	581	309	169	81
Absolute difference [kt CO_2e]	-	-	-	-12	-215	-235	-193	-144	-32	-8
Proportional difference [%]				-0.8%	-15%	-21%	-25%	-32%	-16%	-8.5%

Figure 4.12 presents an overview of the historical and projected emissions from all subcategories of Transport (excl. international transport), for both WEM and WAM scenarios.

Road transport (1A3b) emission increased between 1990 and 2007 which was then followed by a decrease after 2008 because of the financial crisis. After 2014 there is a significant increase in emissions, partly due to increased tourism. These emissions are projected to decrease significantly until 2055, mostly due to increased electrification of the vehicle fleet. It is predicted that in 15 years, the proportion of emission free vehicles will rise from 10% in 2024 to 67% in 2040. The WAM scenario shows a more rapid decrease in emissions, due to earlier electrification of vehicles and increased share of renewable energy in fuels (see chapter 3.4 for further details on the measures).

Fishing and agriculture (1A4c) also contribute significantly to transport emissions, which is mostly from fishing ships. Emissions from Fishing have been steadily decreasing since 1996, with some annual variations, this is mostly due to more efficient fishing practices.

For the WEM scenario the emissions are projected to steadily decrease from 2023 to 2055, which is mostly because of continued increase in more efficient fishing and some renewable energy being introduces into the fishing fleet in the time series, mostly after 2040. The increased emission reduction in the WAM scenario is due to mandatory 10% blending of biofuels (see chapter 3.4.20).

Domestic aviation (1A3a) and domestic navigation (1A3d) are small emissions sources in Iceland. They are expected to decrease due to increased introduction of renewable energy, mostly electricity. Some of these emissions fall under the scope of the EU ETS system.

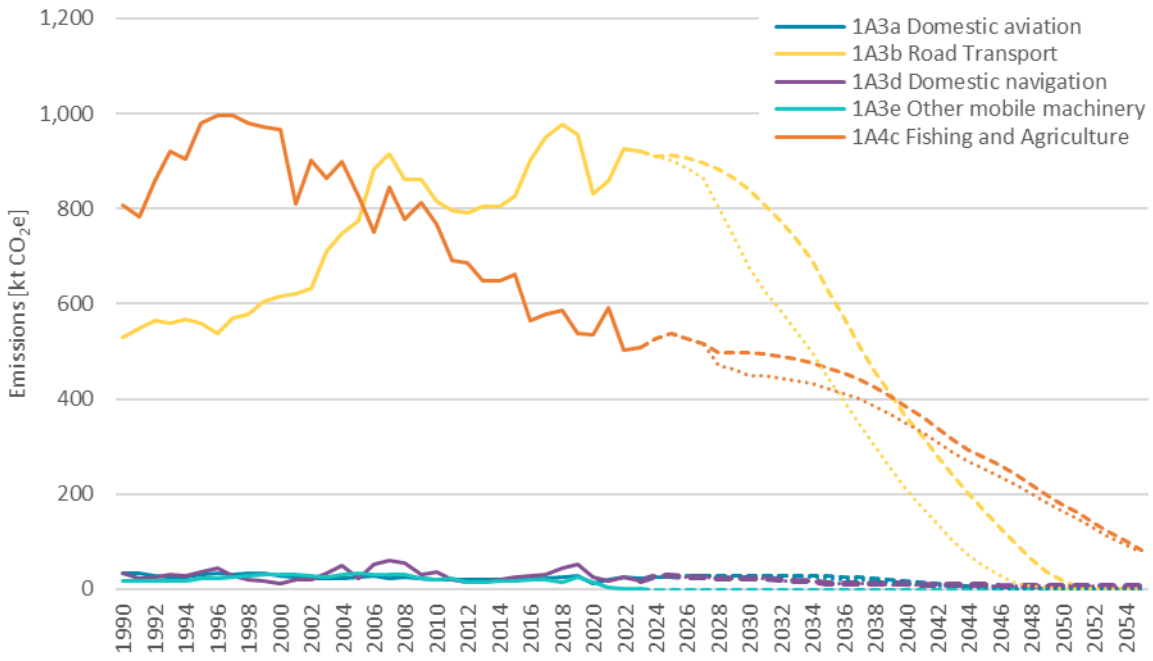

Figure 4.12. Transport Emissions for WEM and WAM scenarios, [kt CO_2e.]. Unbroken lines represent historical emissions, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

Table 4.14. Transport Emissions (excl. international transport), Total GHGs, WEM scenario [kt CO_2e].

Sector	1990	2015	2020	2025	2030	2035	2040	2045	2050	2055
Domestic aviation (1A3a)	34	21	13	27	29	27	16	4.4	0.8	0.1
Road transportation (1A3b)	531	827	830	913	840	630	363	163	17	0.9
Domestic navigation (1A3d)	33	27	25	27	24	13	11	8.1	6.3	5.3
Other mobile machinery (1A3e)	19	17	14	NO	NO	NO	NO	NO	NO	NO
Fishing and agriculture (1A4c)	807	661	536	538	496	466	384	277	177	82
WEM Transport	**1,422**	**1,552**	**1,419**	**1,504**	**1,389**	**1,136**	**774**	**453**	**201**	**89**

Table 4.15. Transport Emissions (excl. international transport), Total GHGs, WAM scenario [kt CO_2e].

Sector	1990	2015	2020	2025	2030	2035	2040	2045	2050	2055
Domestic aviation (1A3a)	34	21	13	26	27	22	11	2.6	0.2	0.0
Road transportation (1A3b)	531	827	830	902	676	445	212	46.5	1.6	0.6
Domestic navigation (1A3d)	33	27	25	27	22	12	10	7.3	5.7	4.8
Other mobile machinery (1A3e)	19	17	14	NO	NO	NO	NO	NO	NO	NO
Fishing and agriculture (1A4c)	807	661	536	538	450	422	349	252	162	76
WAM Transport	**1,422**	**1,552**	**1,419**	**1,492**	**1,174**	**901**	**581**	**309**	**169**	**81**

4.6.1.1 International Transport

WEM and WAM projections are reported for international transport (aviation and navigation), but these do not count towards Iceland's national total emissions. Some of these emissions fall under the EU ETS as both international navigation and aviation are partly under the scope of the system.

Emission projections from international transport can be seen in Figure 4.13. The effect of variation in tourism can clearly be seen in the emissions from international aviation. Tourism peaked in 2018 and emissions from international aviation did as well. After a drop in emission 2020 due to the COVID pandemic emissions have been increasing again and in the WEM scenario they are projected to continue to increase over the next few decades. In the WAM scenario emission are expected to decrease due to increased use of renewable fuels in aviation (see more in chapter 3.4.26).

Emissions from international navigation have also been increasing and are expected to keep increasing slightly over the next few years. After 2030 they are projected to start decreasing due to more use of renewable fuels in navigation.

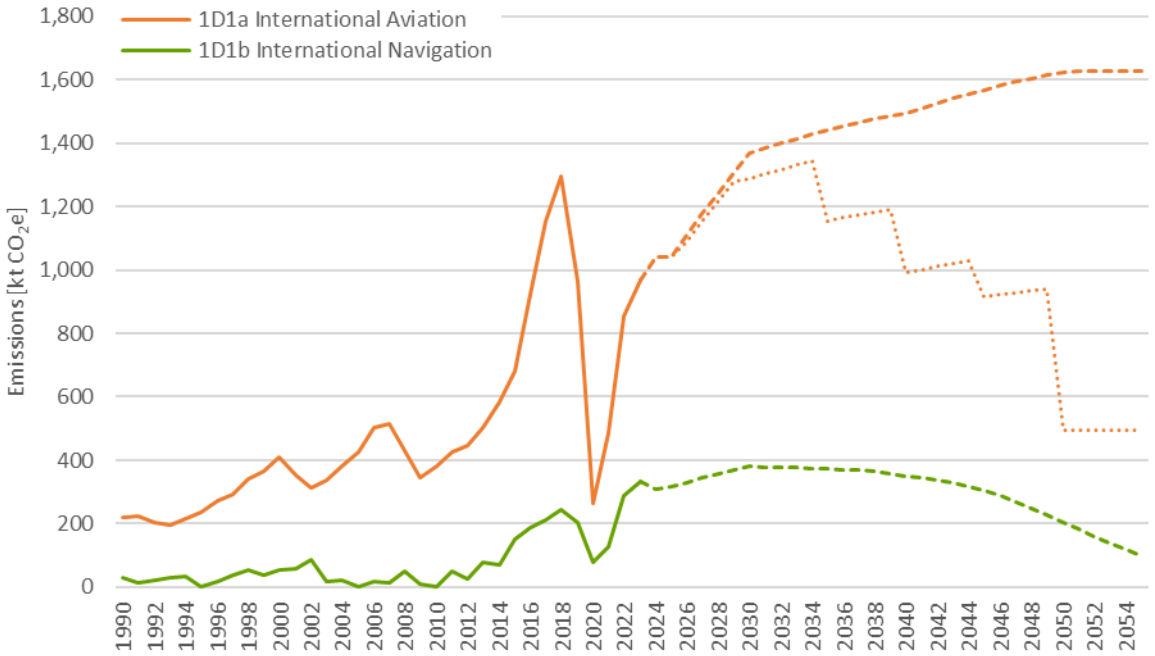

Figure 4.13. International transport emissions for WEM and WAM scenarios, [kt CO_2e.]. Unbroken lines represent historical emissions, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

Table 4.16. International transport emissions, total GHGs, [kt CO_2e], WEM and WAM scenarios and comparison between the scenarios.

Sector	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
1D1a International Aviation (WEM)	221	679	263	1,042	1,370	1,441	1,495	1,568	1,625	1,626
1D1b International Navigation (WEM)	28	149	78	315	381	374	351	304	206	99
WEM Total	249	426	1,300	1,358	1,751	1,814	1,846	1,872	1,830	1,725
WAM Total	249	426	1,300	1,358	1,669	1,528	1,342	1,218	701	594
Absolute difference	-	-	-	-	-82	-286	-505	-654	-1,130	-1,131
Proportional difference [%]	-	-	-	-	-4.7%	-16%	-27%	-35%	-62%	-66%

4.6.2 Methodology of Projections

The methodology used to calculate projected emissions from transport are based on the energy forecast generated by the IEEA. In addition to the energy forecast, data from sibyl baseline[52] was purchased from Emisia to run COPERT 5.8.1 (same methodology as historical emission calculations, see 2025 National Inventory Document).[53]

A general description of the energy forecast is provided in chapter 4.5.2.1. An overview of the data and assumptions used as a basis for the transport projections can be found in Table 4.17.

Table 4.17. Basis for Transport projections.

Transport	Basis for projections
1.A.3.a Domestic Aviation	Energy forecast (2025)
1.A.3.b Road Transportation	Energy forecast (2025), Sibyl baseline data
1.A.3.d Domestic Navigation	Energy forecast (2025)
1.A.3.e Mobile machinery	Energy forecast (2025)
1.A.4.c Fishing and Agriculture	Energy forecast (2025)
1.D.1.a International Aviation	Energy forecast (2025)
1.D.1.b International Navigation	Energy forecast (2025)

4.6.2.1 Energy Forecast

General information on the energy forecast were described in chapter 4.5.2.1 and that description also applies to projections for the transport sectors. In addition, some transport specific parameters are included in the energy forecast.

The main categories of fuel consumption are transportation and fisheries. Before COVID-19, international aviation was the largest consumer of fuel, but passenger vehicles took the lead, followed by fishing vessels during the effects of the pandemic. The aviation sector is again the largest consumer of fossil fuels.

Energy consumption in vehicles is determined by forecasts on car ownership and driving habits, the distribution of vehicle energy sources, and trends in energy consumption per kilometre driven. The forecast for fuel consumption in international aviation is based on projections for air transport and expected developments in aircraft energy consumption. Regarding fishing vessels, the forecast considers scientific estimates of fish catches from Icelandic waters in the coming years, the composition of the fishing fleet, and changes in energy consumption due to fuel-saving measures and improved fishing technology.

Car ownership is estimated based on the age distribution of the population and ownership rates. Driving trends are then derived from car ownership, while freight truck usage is linked to economic growth. International aviation is assessed based on passenger travel flows to and from the country and forecasted trend. Domestic aviation is responsible

[52] *Emisia.* https://www.emisia.com/utilities/sibyl-baseline/
[53] COPERT. https://www.emisia.com/utilities/copert/

for a very small portion of the country's fuel consumption, and its future development is expected to be tied to population trends over the forecast period.

The transition to new-energy vehicles as a share of newly registered cars is expected to follow a logistic function, an S-shaped curve where the rate of adoption is slow at the beginning and end but steep in the middle. This pattern is common in technological shifts, where changes start gradually, accelerate as a large portion of the market transitions, and then slow again as the last remnants of the older technology phase out.

4.7 Industrial Processes and Product Use (IPPU)

Emissions, including projected emissions, from IPPU are dominated by the Metal industry (2C), specifically ferroalloys and aluminium production. The use of fluorinated gases (F-gases) in products as substitutes for Ozone Depleting Substances (ODS, 2F), mostly in the fishing industry, industrial refrigeration and commercial refrigeration, also contributes significantly to emissions from the IPPU sector.

4.7.1 Projections for Industrial Processes and Product Use (IPPU)

An overview of the historical and projected total emissions for the IPPU sector within Iceland can be found in Table 4.18 and Figure 4.14. There is no Electronics industry (2E) in Iceland and therefore this is reported as NO. Only a WEM scenario is reported for the IPPU sector.

Emissions from the Metal Industry (2C) have increased considerably during the past 30 years due to the expansion of existing aluminium smelters and the addition of new smelter facilities. Currently, there are two ferroalloy plants and three aluminium smelters operating in Iceland. It has been assumed that the number of aluminium and ferroalloy plants remains at current levels for the projected years. Permits for more plants have been released, but due to a lack of information on whether or when these plants will begin operating and due to the current worldwide economic situation, they are not included in the WEM projections.

The most recent aluminium smelter started operating in 2007 and CO_2 emissions from Aluminium production increased in a strong correlation with production. In contrast, perfluorocarbon (PFC) emissions occur mostly during the first years of operation, causing the spike in emissions in 2008. They occur in case of increased voltage in the production line (anode effect). Two aluminium facilities are already producing close to the maximal operating allowance. The projections show only a slight increase in emissions compared to 2022 emissions and relatively constant PFC emissions, since a prediction of PFC emissions is difficult to achieve. The aluminium smelters in Iceland are currently operating using the best available technology, following the best practices set out in the Directive 2006/21/EC (BAT Directive). They do, therefore, not foresee any possibilities to reduce emissions until there is a change in technology.

The Ferroalloys industry currently has two operating plants which produce ferrosilicon and silicon metal. The previously mentioned BAT Directive 2006/21/EC also covers the manufacture of ferroalloys. One plant has been in operation since 1979, but the other one started operation in 2018. The ferroalloys industry shows a decrease in emissions, primarily due to increased use of biomass in the production process.

F-gases are mostly used for refrigeration and air conditioning in Iceland. The biggest source in F-gas emissions derives from transport refrigeration (including the fishing fleet, which relies on HFCs for the cooling and freezing systems on board) and industrial refrigeration. The emissions show some variation which can partly be explained by the nature of the calculation method. All 2F1 subcategories have different lifetimes, so end-of-life emissions occur a certain number of years after the import of the gases. The calculation is also based on the import amounts of one calendar year. If a shipment is coming late in

the year, the F-gases might be stockpiled and not used immediately in the same year, even though it appears so from the calculation method. Regulation (EU) 517/2004 is implemented into Icelandic legislation with Regulation No 1066/2019, defining a quota system on the amount of F-gases to be imported each year and steps for phasing it out. This quota system was revised in 2020 and 2023, and revised Regulation No 1066/2019 defines a new quota with a quicker phase out of these compounds. The WEM scenario includes the revised regulation along with the taxing of imports of F-gases. A quantification of the policies on Regulation capping the amount of imported F-Gases (301) and Taxing import of F-Gases (302) can be found in chapter 3.5.2.1.

The Mineral industry (2A) has seen a big drop in emissions as the only cement production plant in Iceland closed in 2011. The projections are based on a single facility producing mineral wool, which is having a fairly constant production target (based on communication from the facility), and therefore, constant emissions over time. The Chemical industry (2B) is insignificant in the Icelandic inventory, with no emissions reported under this sector since 2005. In the past, there were a fertiliser production plant, which stopped production in 2001, and a diatomite production plant, which stopped production in 2004. There is no information on plans of opening new production facilities in these two sectors.

Table 4.18. Historical and projected emissions, kt CO_2e in the IPPU sector.

Sector	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
Mineral Industry (2A)	52	55.0	0.97	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Chemical industry (2B)	42	NO	NO	NO	NO	NO	NO	NO	NO	NO
Metal industry (2C)	795	825	1,811	1,850	1,863	1,863	1,864	1,863	1,863	1,863
Non-energy products from fuels and solvent use (2D)	6.8	6.9	5.7	5.7	5.5	5.1	4.7	4.7	4.6	4.5
Electronics industry (2E)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Product use as substitutes for ODS (2F)	0	57	125	105	35	9	11	12	12	12
Other product manufacture and use (2G)	6.6	6.1	3.8	4.6	4.6	4.7	4.7	4.8	4.8	4.8
Other (please specify) (2H)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
WEM IPPU	**902**	**950**	**1,946**	**1,966**	**1,910**	**1,883**	**1,886**	**1,886**	**1,886**	**1,885**

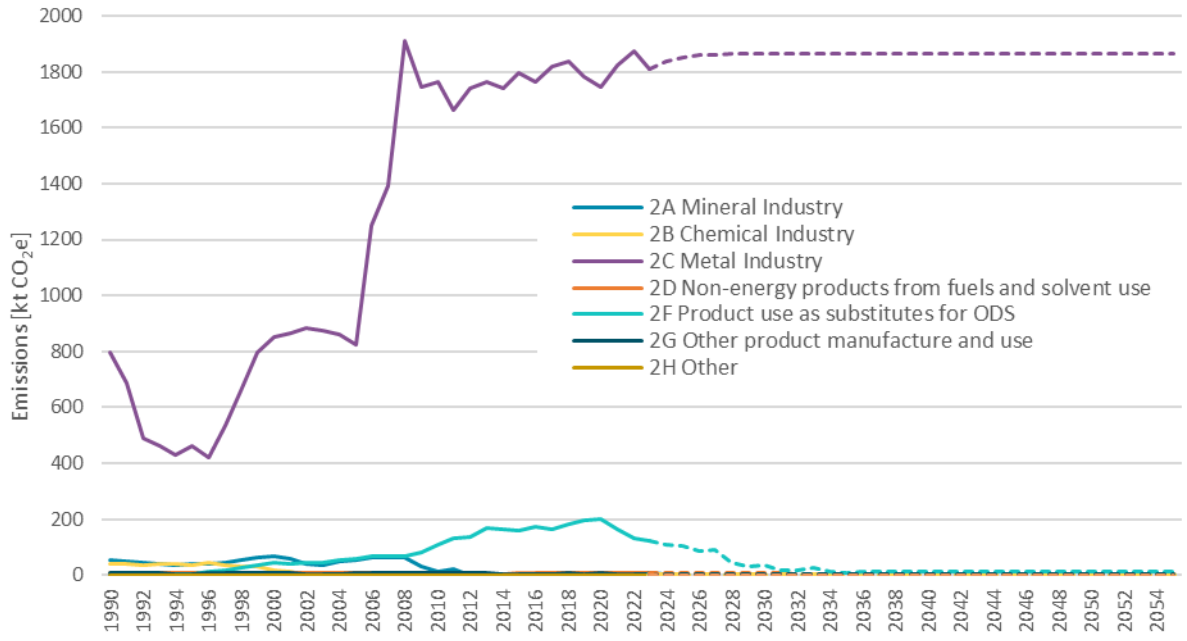

Figure 4.14. IPPU Emissions Total GHGs, [kt CO_2e], WEM scenario. Solid lines represent historical emissions, dashed lines WEM projections.

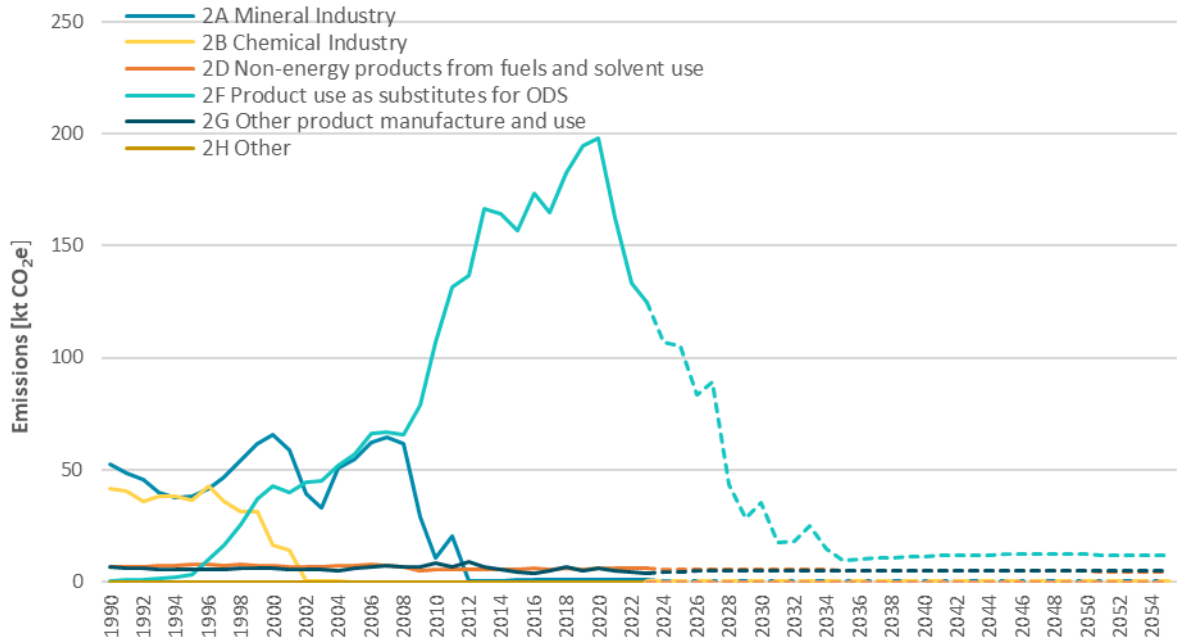

Figure 4.15. IPPU Emissions without the metal sector (2C), [kt CO_2e], WEM scenario. Dashed lines represent projected emissions.

4.7.2 Methodology of Projections

The methodology used to generate WEM projections for the IPPU sector are based on the historical inventory, meaning the activity data is projected and the same methodology is used to calculate emissions as in the historical inventory. Please refer to the 2025 edition of the National Inventory Report where information about activity data and emission factors is collected. Only a WEM scenario has been calculated for the entire IPPU sector.

The impact of three measures (301, 302 and 303) in the IPPU sector (see chapter 3.5) is represented in the WEM scenario produced.

An overview of the activity data and assumptions used as a basis for the IPPU projections can be found in Table 4.19. The emission factors are calculated following the methodology in the historical inventory. Where the application of default or tier 3 facility specific emission factors was not possible due to the lack of data, averages of historical data were used to provide implied emission factors. A further description is provided below.

Table 4.19. Activity data basis for IPPU projections.

IPPU	Basis for projections
2.A Mineral Industry	Activity data provided by the operators.
2.B Chemical Industry	Not relevant in Iceland.
2.C Metal Industry	Activity/emission data provided by the operators.
2.D Non-energy products from fuels and solvent use	GDP, population and fuel projection, trends over the past years.
2.E Electronics Industry	Not relevant in Iceland.
2.F Product uses as substitutes for ODS	Average import of last years, mass balance to allocate imported amounts to different sectors.
2.G Other product manufacture and use	GDP and population projection, trends over the past years.

4.7.2.1 2.A Mineral Industry and 2.C Metal Industry

The main companies (mineral wool, ferroalloys, and aluminium) were asked to provide production and emission estimates. Based on these data, a slight emission reduction is projected but no significant changes are expected in these subsectors.

There are currently no plans for adding new aluminium smelters, ferroalloys plants, or for resuming production of cement, fertiliser, diatomite, or steel. Therefore, the projections are based on the current production and the production amounts communicated by the individual companies.

The impact of EU-Emission Trading System (303) in the IPPU sector (see chapter about mitigation policies and measures) is represented in the WEM scenario produced. The impact of Carbon Capture and Storage (304) was not considered since the utilisation of this technique within the industry in Iceland is still in a developmental stage.

4.7.2.2 2.F Product Uses as Substitutes for ODS

The projected emissions deriving from F-gases (sector 2F1) take into account the effect of Icelandic Regulation No 1446/2023 which phases out the import of F-gases and the effect of the taxation. The average of the actual imports was found for the years 2021-2023. The same constant bulk import amount was assumed to apply to future years to project the

total import. The import in products is assumed to be constant in future years. Further details can be found in chapter 3.5.2.1.

4.8 Agriculture

The projections encompass emissions from Enteric Fermentation (3A), Manure Management (3B), Agricultural Soils (3D), Liming (3G), Urea (3H), and Other Carbon-Containing Fertilisers (3I). Activities related to other agricultural CRT categories do not occur in Iceland.

Historically, the largest source of greenhouse gas emissions from the Agriculture sector in Iceland has been Agricultural Soils (3D), mainly due to Enteric Fermentation (3A) and Cultivation of Organic Soils (3D1f). The decline in greenhouse gas emissions since 1990 is mainly due to a decrease in the sheep livestock population, reducing methane emissions from enteric fermentation. Further information on the Agriculture sector in Iceland can be found in Iceland's latest National Inventory Document (NID).

4.8.1 Projections for Agriculture

The projections performed for the Agriculture sector include both With Existing Measures (WEM) and With Additional Measures (WAM) scenarios. The historical emissions of the entire sector, along with the WEM and WAM projected emissions, are presented in Figure 4.16. The comparison between the WEM and WAM projections can be found in Table 4.20.

The historical emissions of the main subsectors of Agriculture, along with the WEM and WAM projected emissions, are presented in Figure 4.16 and reported in Table 4.21 and

Table 4.22. Emissions from Agriculture are projected to continue declining due to a projected decrease in livestock numbers, primarily sheep and dairy cattle, which are key categories in sector.

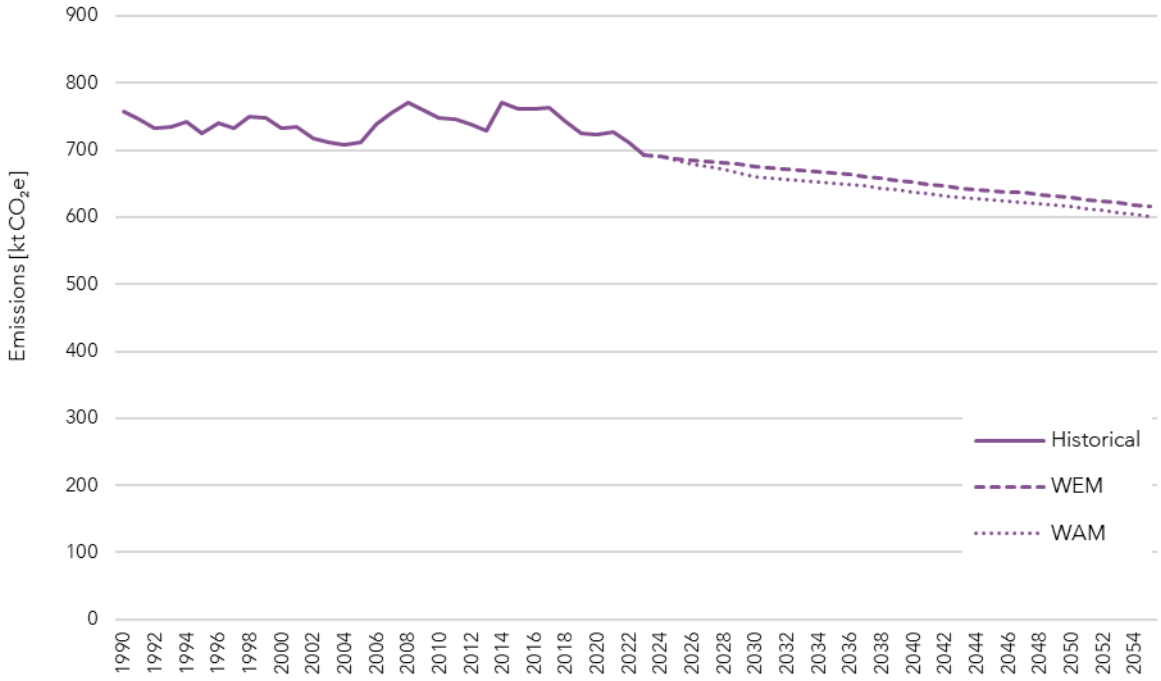

Figure 4.16. Emissions of total GHGs for the whole Agriculture sector, WEM and WAM scenarios. Unbroken lines represent historical emissions, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

Table 4.20. Historical and projected emissions for the Agriculture sector for the WEM and WAM scenario including the proportional difference.

	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
WEM Agriculture [kt CO_2e]	757	711	692	687	676	666	652	640	629	616
WAM Agriculture [kt CO_2e]	757	711	692	684	661	651	637	625	615	602
Absolute difference [kt CO_2e]	-	-	-	-2.5	-15	-15	-15	-14	-14	-14
Proportional difference [%]	-	-	-	-0.4%	-2.2%	-2.2%	-2.2%	-2.2%	-2.3%	-2.3%

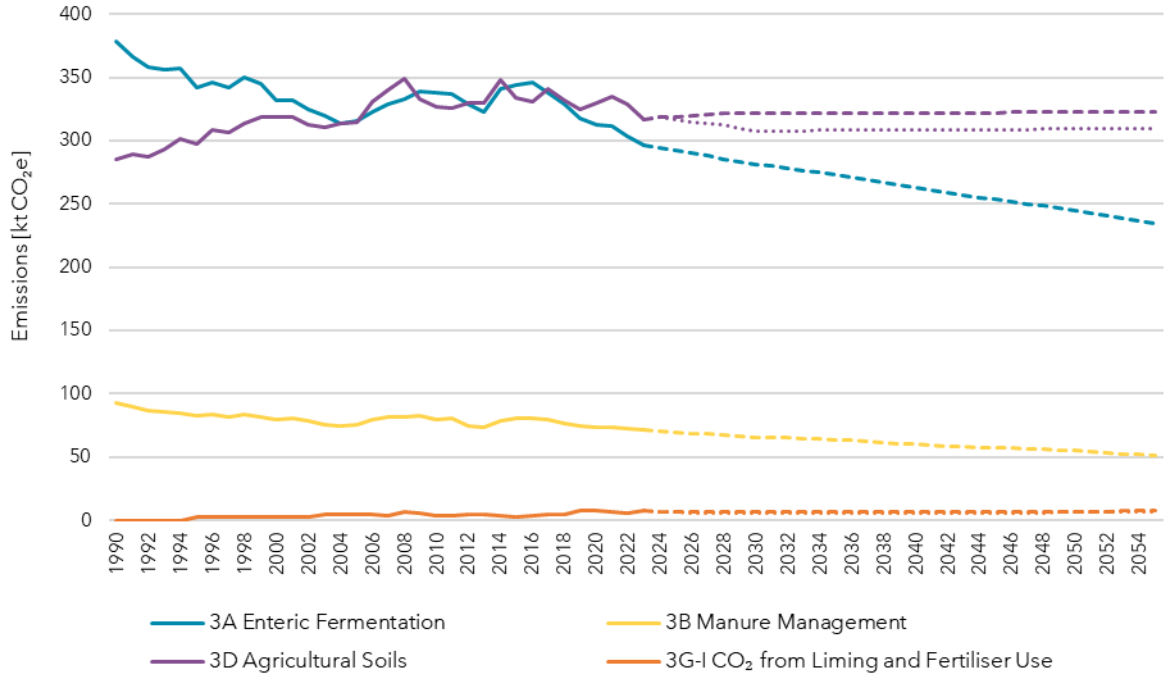

Figure 4.17. Emissions of total GHGs, WEM and WAM scenarios, for the main subsectors of Agriculture. Unbroken lines represent historical emissions, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

Table 4.21. Historical and projected WEM emissions in the Agriculture sector [kt CO_2e].

Sector	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
Enteric fermentation (3A)	379	316	296	292	282	273	263	253	245	234
Manure Management (3B)	93	75	71	70	66	64	60	57	55	51
Agricultural Soils (3D)	285	315	317	319	322	322	322	322	323	323
Liming (3G)	0.0	2.4	4.9	3.0	3.3	3.6	3.9	4.2	4.5	4.8
Urea Application (3H)	NO	NO	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Other Carbon-containing Fertilisers (3I)	NO	2.1	1.1	1.4	1.2	1.1	0.9	0.8	0.7	0.6
WEM Agriculture	**757**	**711**	**692**	**687**	**676**	**666**	**652**	**640**	**629**	**616**

Table 4.22. Historical and projected WAM emissions in the Agriculture sector [kt CO2e].

Sector	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
Enteric fermentation (3A)	379	316	296	292	282	273	263	253	245	234
Manure Management (3B)	93	75	71	70	66	64	60	57	55	51
Agricultural Soils (3D)	285	315	317	316	308	308	308	309	309	309
Liming (3G)	0.0	2.4	4.9	3.0	3.3	3.6	3.9	4.2	4.5	4.8
Urea Application (3H)	NO	NO	1.8	1.9	1.3	1.3	1.3	1.3	1.3	1.3
Other Carbon-containing Fertilisers (3I)	NO	2.1	1.1	1.4	0.8	0.7	0.6	0.5	0.4	0.4
WAM Agriculture	**757**	**711**	**692**	**684**	**661**	**651**	**637**	**625**	**615**	**602**

4.8.2 Methodology of Projections

The 2019 Refinements to the 2006 IPCC Guidelines are used for all Tier 1 animals in the inventory, as they are considered more accurate. However, some unanswered questions remain regarding the parameters used in the Tier 2 methodology in the 2019 Refinements and, hence, Cattle and Sheep emissions are estimated using the 2006 IPCC Guidelines. The Tier 1 methodology is applied to all subsectors of Agriculture except for the Cattle and Sheep subcategories (3A1, 3A2, 3B1, and 3B2) and Cultivation of Organic Soils (3D1f), where the Tier 2 methodology is applied.

The methodology used to generate projections for the Agriculture sector is based on the historical inventory. For more detail, refer to the latest edition of the National Inventory Document, which contains information on activity data and emission factors.

As it is not possible to quantify effects of the two implemented measures aimed at reducing greenhouse gas emission from Agriculture, the WEM projections for the sector are based on trends and expert judgement. To obtain expert judgement on the necessary assumptions, inquiries were sent out to specialists from the Agricultural University of Iceland and the Icelandic Agricultural Advisory Centre. Inventory experts provided these specialists with multiple scenarios and requested them to select the most likely one, accompanied by justification for their choice.

An overview of the data and assumptions used as a basis for the Agriculture projections is presented in Table 4.23 with a further description provided below.

Table 4.23. Activity data basis for agriculture projections.

Agriculture	Basis for Projections
Livestock population projections	Extrapolation of historical trends Expert judgement
3A Enteric Fermentation	Extrapolation of historical trends Expert judgement
3B Manure Management	Extrapolation of historical trends
3C Rice Cultivation	Not occurring in Iceland
3D Agricultural Soils	Extrapolation of historical trends
3E Prescribed Burning of Savannahs	Not occurring in Iceland
3F Field Burning	Not occurring in Iceland
3G Liming	Extrapolation of historical trends
3H Urea Application	Extrapolation of historical trends
3I Other Carbon-containing Fertilisers	Extrapolation of historical trends

4.8.2.1 Livestock Population

The trend in livestock populations has been projected by extrapolation to 2055 based on the available historical data. The historical data is collected from the Ministry of Industries (previously Ministry of Food, Agriculture, and Fisheries) and are the same numbers as are used in calculations for the Agriculture sector in the 2025 NID.

To assess the best possible trends considering the variability of the historical data, agricultural experts at the Agricultural University of Iceland were consulted. These experts determined the most representative livestock projections for Tier 2 livestock categories, Cattle and Sheep, based on their expectation of future developments in these agricultural

sectors. Factors such as agricultural contracts, consumer behaviour, and the level of imports of agricultural goods were also taken into account. As agricultural contracts are set to be renegotiated in 2026, projections for these livestock categories may be subject to revision.

The conclusion was that sheep numbers were linearly projected based on the entire time series 1990-2023. For Cattle, the number of historical years used for established trends varied by subcategory, i.e., last 8 years for Steers, 10 years for Calves and the entire time series 1990-2023 for other Cattle subcategories. Based on these trends, the total number of cattle and sheep are expected to decrease by 6% and 2% in 2030, respectively, compared to 2023.

4.8.2.2 Livestock Characterisation

All parameters necessary for livestock characterisation, including pregnancy rates, days on pasture/in housing, and weight, were kept constant throughout the projected time series and correspond to the values used in the historical inventory. The only exception is the prediction of feed digestibility and ash content, where trend was applied for Tier 2 livestock categories, Cattle and Sheep.

Currently, the average annual milk yield per Icelandic dairy cow is below 6,500 kg/year, compared to the EU-27 average of 7,682 kg/year. However, high-producing dairy cows in Iceland already achieve 9,000 kg/year. Based on expert judgement from the Icelandic Agricultural Advisory Centre, considering factors such as genetic improvements and improved feeding practices, the trend based on the entire 1990–2023 time series is considered the most appropriate for predicting future annual milk yield per dairy cow. Using this trend, annual milk yield is projected to increase by 9% in 2030 and 39% in 2055, relative to 2023 levels. However, external factors such as rising prices of feed and fertiliser, import restrictions, climatic changes, could significantly impact these projections. The emission factors remain unchanged from those used in the 2025 historical inventory, as they could not be projected due to a lack of data and their high uncertainty.

4.8.2.3 Agricultural Soils

Other sources of emissions, such as the use of organic and inorganic nitrogen-fertilisers, liming, and urea application, are projected through extrapolation of historical data. The projected area sizes used for calculating of N_2O emissions from drained organic soils are provided by Land and Forest Iceland (*Land og skógur*), which is responsible for the projections for the LULUCF sector.

4.9 Land Use, Land-Use Change, and Forestry (LULUCF)

The total area of Iceland is 10,238 kha, where approximately 90% of total land area classified under two specific land-use categories: Other Land and Grassland (Figure 4.18; Figure 4.19) throughout the entire reporting period. The detailed proportional distribution of Iceland's land among the six principal land-use categories for 2023 is illustrated in Figure 4.19.

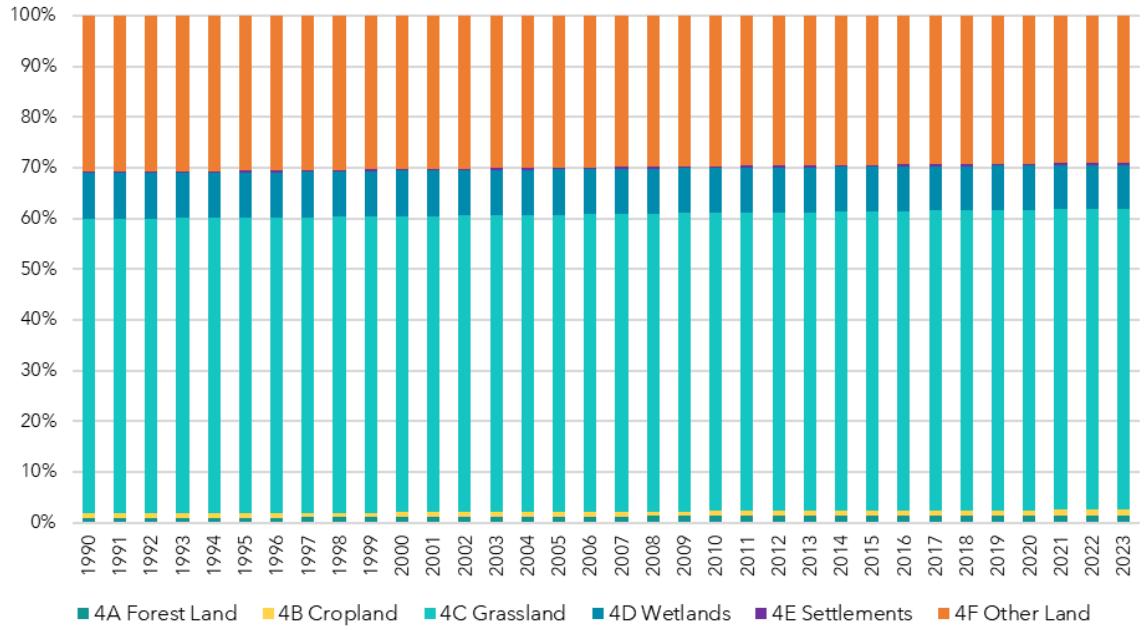

Figure 4.18. Relative shares of land-use categories in Iceland over the entire reporting period, %.

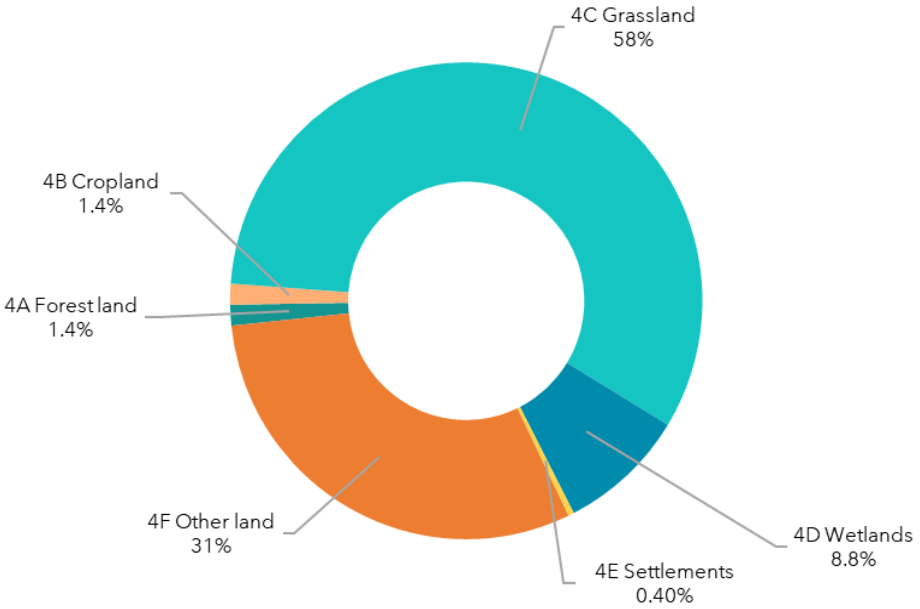

Figure 4.19. Relative size of land-use categories in Iceland as reported for 2023, %.

4.9.1 Projections for LULUCF

The LULUCF sector remained a net source of emissions throughout the entire reporting period (Figure 4.20), with the land-use category Grassland being the main contributor, whereas the land-use category Forest Land as a net sink. The detailed numerical data for 2023 are presented in Figure 4.21.

The driving forces behind changes in greenhouse gas emissions and removals, along with all underlying parameters (activity data and emission factors) used to calculate the historical greenhouse gas emissions and removals for six land-use categories, are documented in the 2025 National Inventory Document (NID) (Icelandic Environment and Energy Agency, 2025).

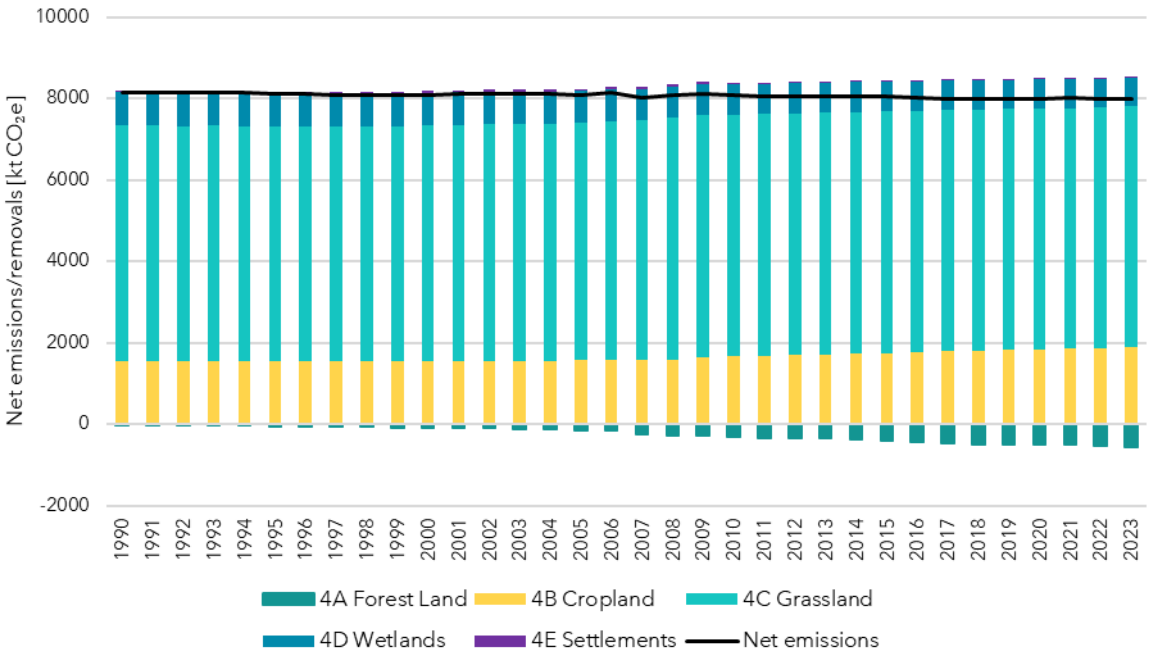

Figure 4.20. Emissions trends for all land-use categories in 1990–2023, kt CO_2e. Note that these trends include non-CO_2 gases.

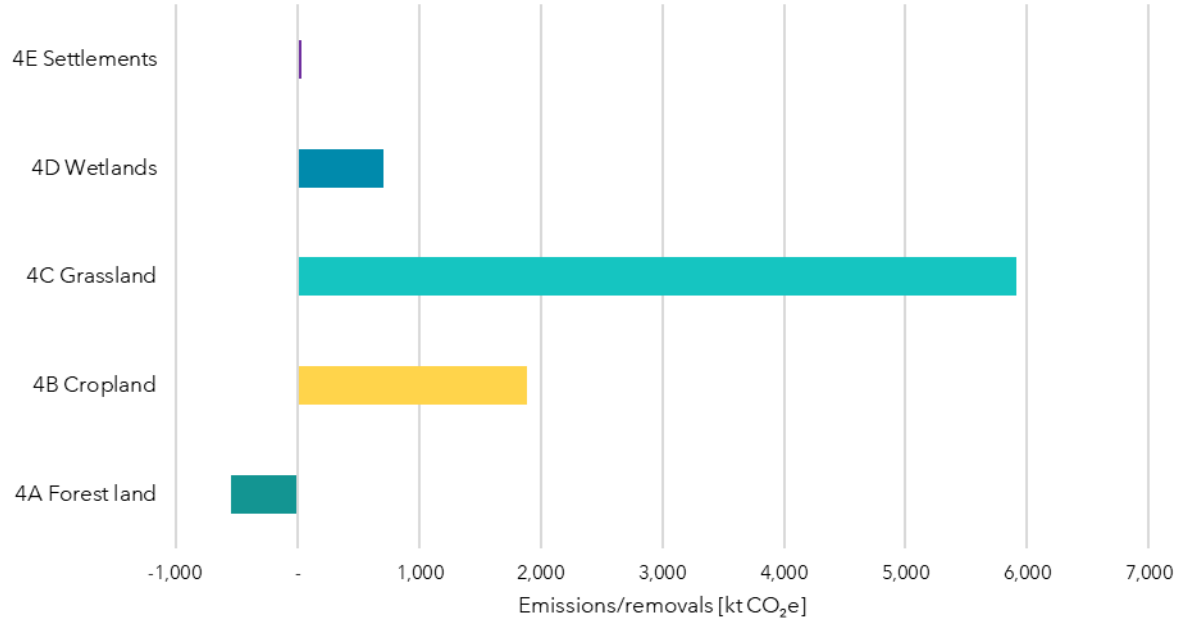

Figure 4.21. The net emissions/removals of land-use categories in 2023, kt CO_2e.

4.9.2 Methodology, Activity Data and Assumptions Used to Evaluate WEM Scenario Projections

As outlined in Section 3.7, the classification of land use aligns with the 2006 IPCC Guidelines, which establish six primary land-use categories along with the transitions between them. Greenhouse gas emissions and removals are documented for all managed lands within these categories.

The methodology implemented to calculate greenhouse gas emissions and removals within the With Existing Measures (WEM) scenario projections is based on:

- The data and emission factors applied in the LULUCF sector historical inventory (see NID 2025).
- The linear extrapolation of historical trends.
- The Fiscal policy of the Icelandic Government 2025-2028, which outlines financial support for the restoration of two ecosystems and forest activities.

Specifically, the projections are aligned with the principles outlined in measure 601, covering three key activities (Table 4.24):

1. Enhanced afforestation actions.
2. Expanding the restoration of degraded grassland.
3. Restoration of degraded wetlands.

Specifically, the fiscal policy has outlined the number of hectares per year that will receive financial support for each activity. These data on areas, along with relevant underlying information for three land-use categories, were used to calculate the WEM scenario

projections (Table 4.24). A detailed methodological description is provided below the table.

Since the fiscal policy plan covers the period until 2028, expert judgment suggests that it will remain unchanged from 2029 to 2055. Therefore, the underlying data and assumptions made under the fiscal policy plan were applied to conduct the estimates for the period from 2029 to 2055.

Table 4.24. Assumptions applied to evaluate the WEM scenario projections.

Land-use category	Underlying key assumptions / Description of measure
Forest Land (4.A)	Historical trend, model projecting C stock change.
Enhanced actions on Forest Land	Enhanced actions on Forest land were defined in form of afforestation of Grassland/Other land (mineral soils). The government´s fiscal plan (2024) was reiterated and enhanced for the years 2025 to 2029 where afforestation activities have been planned to increase from 3,400 ha/yr in 2024 to 8,500 ha/yr in 2029. It is assumed that annual afforestation is 8,500 ha/yr for the period 2030 – 2055.
Cropland (4.B)	Linear extrapolation of historical trends based on the land use transition matrix.
Grassland (4.C)	Linear extrapolation of historical trends based on the land use transition matrix.
Expanding revegetation	The government's fiscal plan (2024) outlines an expansion of efforts to restore degraded grasslands as follows: 2024: 7,500 ha/yr of degraded grassland 2025 – 2055: 10,000 ha/yr of degraded grassland
Wetlands (4.D)	Linear extrapolation of historical trends based on the land use transition matrix.
Restoration of wetlands	The government´s fiscal plan (2024) outlines an expansion of efforts to restore disturbed wetlands as follows: 2024: 20 ha/yr of disturbed wetlands 2025-2028: 660 ha/yr of disturbed wetlands 2029-2055: 642 ha/yr of disturbed wetlands
Settlements (4.E)	The extrapolation of the historical trend for settlements is based on the projected expansion of inhabited areas and roads, which correlates with the expected population growth in Iceland from January 1, 2024, to January 1, 2055, as projected by Statistics Iceland. According to Statistics Iceland (2024), the population is forecasted to increase by approximately 51% by 2051.
Other Land (4.F)	Linear extrapolation of historical trends.

4.9.2.1 Forest Land (4.A)

A sample plot statistic of the national forest inventory was used to estimate the species and age structure of the cultivated forest, following a method similar to that used in the Icelandic National Forestry Accounting Plan (Snorrason, Kjartansson, & Traustason, 2020).

Future harvesting projections were based on a comparison between wood production from 1996-2023 and the potential harvesting of forest plots defined as available for wood supply according to the model output. During this period, only 16% of potential harvesting was carried out.

4.9.2.2 Cropland (4.B)

The WEM scenario projections for greenhouse gas emissions and removals associated with the land-use category Cropland were calculated based on the average of annual

changes in area over the latest five years of the historical inventory. Additionally, the projections consider the assumptions made for other land-use categories.

4.9.2.3 Grassland (4.C)

The WEM scenario projections for greenhouse gas emissions and removals associated with the land-use category Grassland were calculated based on the average of annual changes in area over the latest five years of the historical inventory. These changes were then extrapolated for the entire projection period.

Data on revegetation areas were obtained from the government's fiscal plan (Table 4.24). It was assumed that these would be attributed among subcategories based on the ratio of average areas of subcategories over the latest five years of the historical inventory.

4.9.2.4 Wetlands (4.D)

The WEM scenario projections for greenhouse gas emissions and removals associated with the land-use category Wetlands were calculated based on the average of annual changes in areas over the latest five years of the historical inventory. These average annual changes were then extrapolated for the entire projection period (Table 4.24).

Data on rewetted areas were obtained from the government's fiscal plan. All rewetted area were attributed to the conversion of grassland "Organic soils drained for more than 20 years" to "Rewetted mires".

4.9.2.5 Settlements (4.E)

The WEM scenario projections for greenhouse gas emissions and removals associated with the land-use category Settlements were calculated based on projected settlement areas, using the projected population growth data from Statistics Iceland[54] (Table 4.24).

It was assumed that the Settlements area would be expanded on "Forest land converted to Settlements" and "Natural birch shrubland converted to Settlements", based on the average of annual changes observed over the latest five years of the historical inventory. These trends were then extrapolated for the entire projection period.

The remaining annual increase in Settlements was attributed to "All other Grassland subcategories converted to Settlements".

4.9.2.6 Other Land (4.F)

The WEM scenario projections for greenhouse gas emissions and removals associated with the land-use category Other Land were calculated based on the average of annual changes over the latest five years of the historical inventory. These average annual changes were then extrapolated for the entire projection period.

[54] Projected population growth, published by Statistics Iceland in November 2024.

4.9.3 WEM Scenario Projections for the LULUCF Sector

Between 2023 and 2055, the Forest Land area is projected to increase from 154 kha in 2023 to 422 kha in 2055. The Cropland area is expected to expand gradually from 110 kha in 2023 to 142 kha in 2055, along with the Grassland area, which will grow from 6,065 kha in 2023 to 6,150kha in 2055.

The Settlement area is projected to increase from 43 kha in 2023 to 54 kha in 2055. In contrast, the area of Other Land is expected to decline from 2,973 kha 2023 to 2,590 kha in 2055, along with Wetlands area, which will decrease from 894 kha in 2023 to 881 kha in 2055 (Table 4.25).

The projected distribution of LULUCF categories for the period between 2023 and 2055 is presented in Figure 4.22.

Table 4.25. Total historical and projected areas by land use category, kha.

Land categories	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
4A Forest Land	96	125	154	162	200	245	289	333	378	422
4B Cropland	92	95	110	112	117	122	127	132	137	142
4C Grassland	5954	6000	6065	6074	6090	6101	6113	6125	6137	6150
4D Wetlands	911	909	894	893	891	889	887	885	883	881
4E Settlements	28	38	43	44	46	48	50	52	53	54
4F Other Land	3157	3071	2973	2953	2894	2833	2772	2711	2650	2590

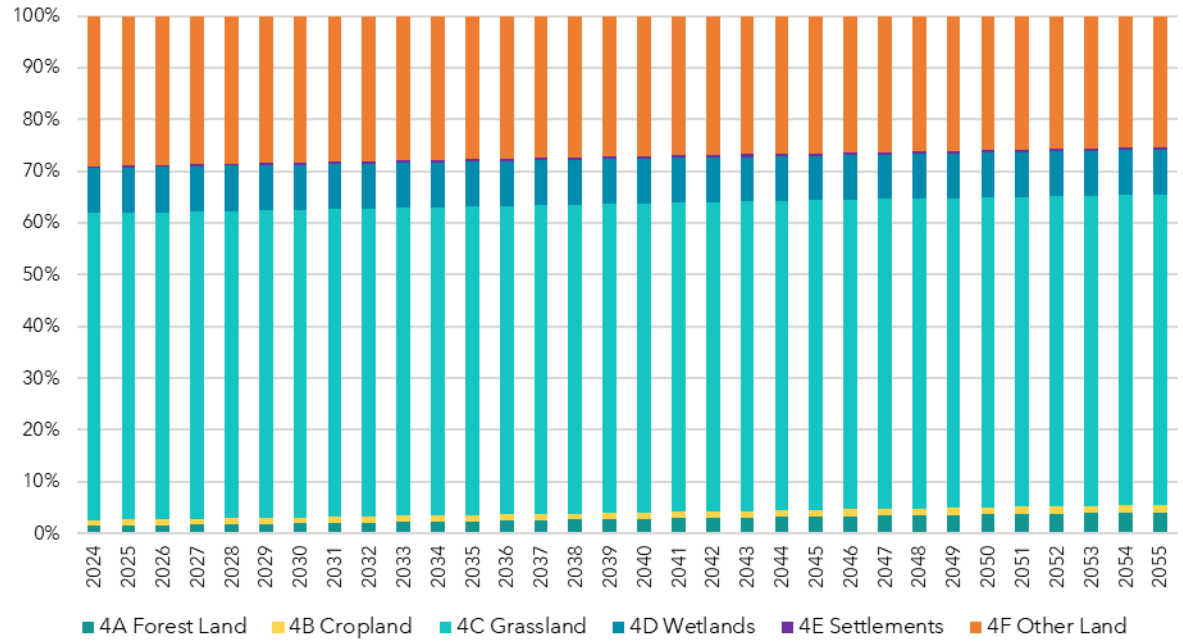

Figure 4.22. Relative shares of land-use categories in Iceland over the entire projections reporting period, %.

Historical emissions from the LULUCF sector have decreased slightly during the last decade, according to the latest inventory. The WEM emissions projections have decreasing trends as well.

Historical and projected emissions trends in LULUCF for the WEM scenario is presented in Table 4.26 and Figure 4.23.

Table 4.26. Total historical and projected GHG emissions/removals in the WEM scenario for the LULUCF sector [kt CO_2e].

Land categories	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
4A Forest Land	-30	-140	-554	-564	-678	-854	-1094	-1408	-1812	-2259
4B Cropland	1530	1563	1887	1922	2009	2092	2176	2260	2344	2427
4C Grassland	5809	5832	5918	5888	5774	5701	5708	5638	5560	5471
4D Wetlands	807	783	702	697	691	684	677	671	664	658
4E Settlements	26	54	31	35	35	38	40	36	31	23
4F Other Land	–	–	–	–	–	–	–	–	–	–
4G HWP	–	0.003	-0.22	-0.10	-0.25	-0.26	-0.24	-0.23	-0.32	-0.46
4H Other	–	–	–	–	–	–	–	–	–	–
4 LULUCF	**8142**	**8092**	**7985**	**7978**	**7830**	**7661**	**7507**	**7197**	**6,788**	**6321**

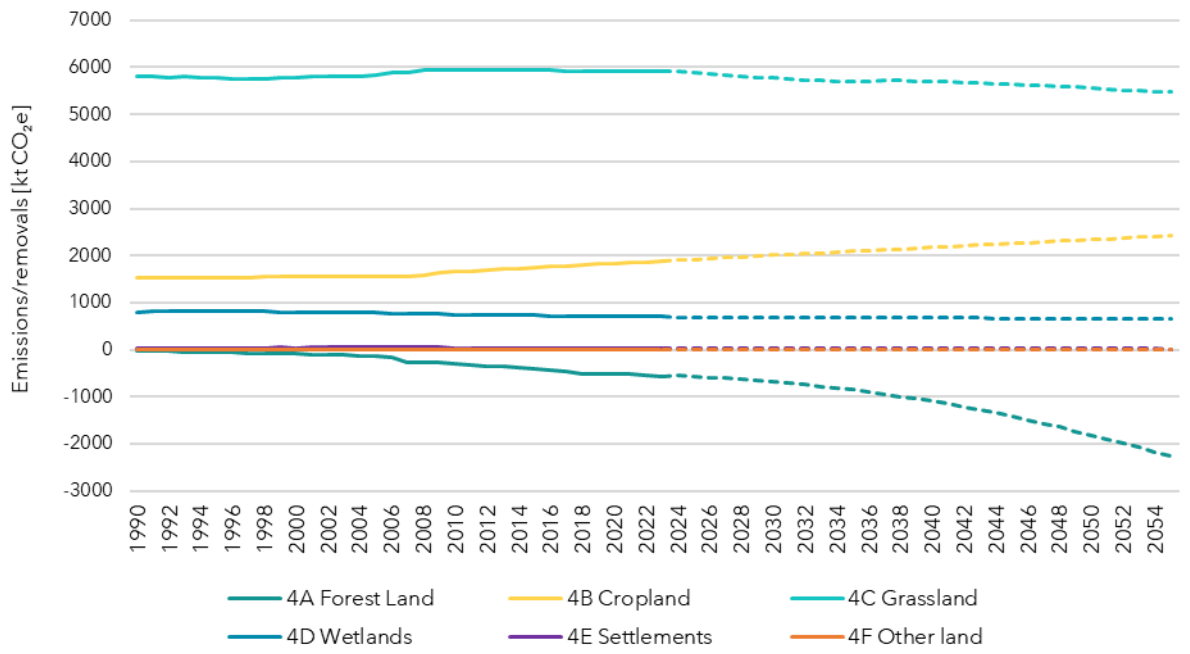

Figure 4.23. Total historical and projected LULUCF emissions in the WEM scenario 1990-2055 [kt CO_2e]. Unbroken lines represent historical emissions, broken lines projected emissions.

4.10 Waste

This sector includes emission projections from Solid Waste Disposal (5A), Biological Treatment of Solid Waste (5B), Incineration and Open Burning of Waste (5C), and Wastewater Treatment and Discharge (5D).

Historically, 80-90% of greenhouse gas emissions from the Waste sector in Iceland have come from Solid Waste Disposal (5A). In recent years, the emissions from SWDS have been decreasing due to reduced landfilling and increased methane collection.

4.10.1 Projections for Waste

The projections performed for the Waste sector include both WEM and WAM scenarios. The historical and projected emissions from Waste sector are presented in Figure 4.24 (Waste sector in WEM), Figure 4.25 (Waste main subsectors in WEM and WAM) and Figure 4.26 (Waste main subsectors except 5A in WEM and WAM)

Emissions from Solid Waste Disposal (5A) are projected to decline rapidly until 2028, followed by a slower decrease. This sharp decline is driven by the export of all mixed waste from the capital region for incineration abroad, limiting landfill disposal at Álfsnes landfill site to mostly inert waste after 2023. Additional reductions stem from the increased operation of the GAJA gas and composting plant and the ban on landfilling of specifically sorted and collected biowaste. Concurrently, steady methane recovery from landfill sites will also contribute to emission reductions. The combination of reduced waste and high methane recovery drives the steep decline in emissions from solid waste disposal. After 2028, emissions will decrease more gradually due to decline in methane recovery from the two largest SWDSs, as methane production diminishes. However, the continued reduction in landfilled organic waste will further lower emissions over the long term. The WAM scenario shows further reductions in emissions as it includes the ban on landfilling of organic waste, expected to be implemented in 2028.

Emissions from Biological Treatment of Waste (5B) are projected to remain stable. The small increase between 2019 and 2020 resulted from GAJA plant beginning limited operations in the in the second half of 2020. However, the plant could not operate at full capacity in 2021, delaying the anticipated stepwise rise in emissions. From 2025, GAJA is expected to process 30 kt of waste annually, producing compost and methane gas. The WAM scenario shows slightly higher emissions, as it includes the implementation of a new bioenergy plant.

Emissions from Waste Incineration (5C) are projected to remain stable in the WEM scenario. Kalka, the country's only incineration plant, is already operating at full capacity and is expected to continue at the same scale. In WAM scenario, emissions are projected to rise significantly in 2030 and then stabilise due to the introduction of new, larger incineration plant(s).

Emissions of Wastewater Treatment and Discharge (5D) are projected to increase, reflecting expected population growth. Projections in this sector include only a WEM scenario as there is currently insufficient data to develop a WAM scenario.

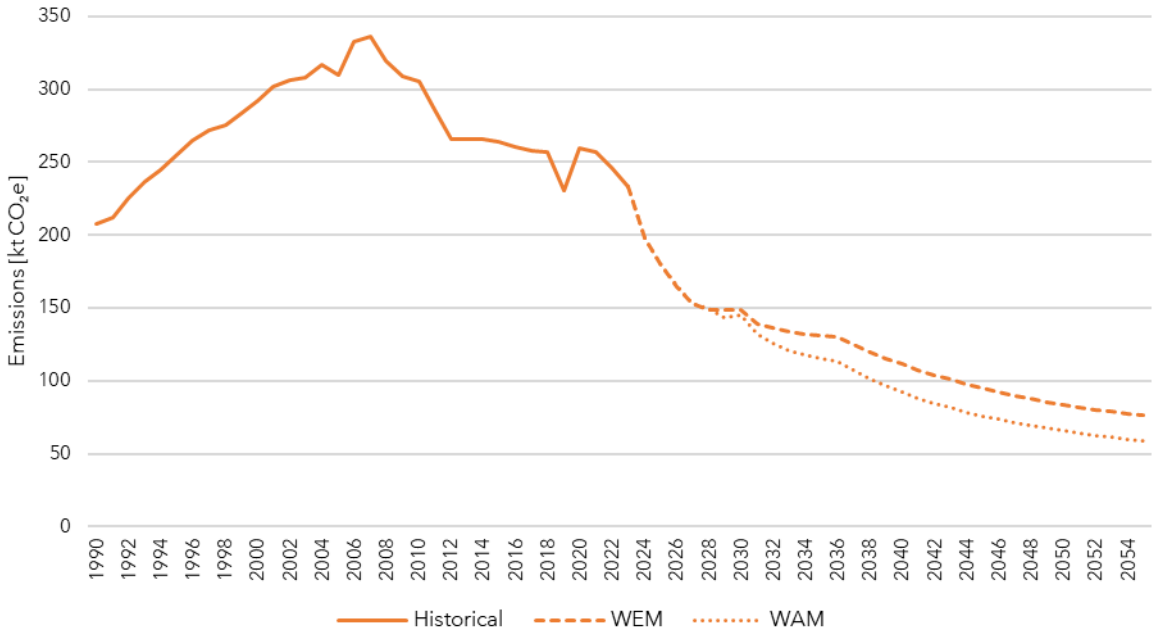

Figure 4.24. Emissions of total GHGs for the whole Waste sector, WEM and WAM scenarios. Unbroken lines represent historical emissions, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

Table 4.27. Historical and projected emissions for the Waste sector for the WEM and WAM scenario including the proportional difference.

	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
WEM Waste [kt CO_2e]	207	309	233	180	148	131	111	95	84	76
WAM Waste [kt CO_2e]	207	309	233	181	145	115	92	76	66	59
Absolute difference [kt CO_2e]	–	–	–	0.10	-3.4	-16	-19	-19	-18	-17
Proportional difference [%]	–	–	–	0.057%	-2.3%	-12%	-17%	-20%	-22%	-23%

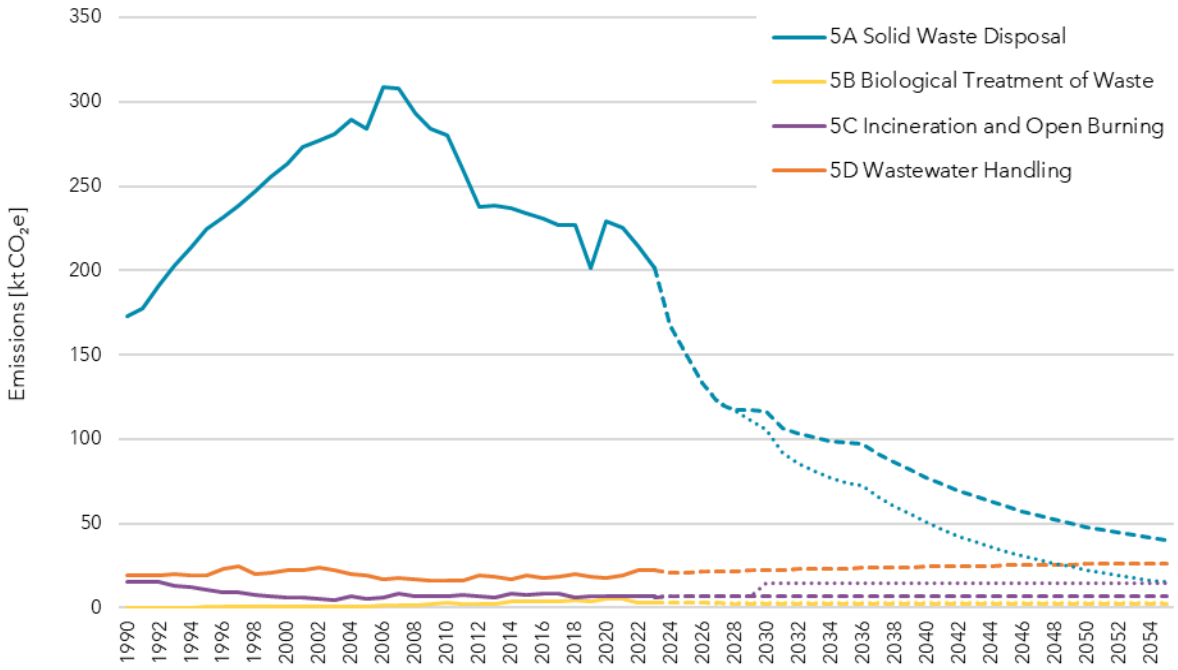

Figure 4.25. Emissions of total GHGs, WEM and WAM scenarios, for the main subsectors of Waste. Unbroken lines represent historical emissions, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

Table 4.28. Historical and projected WEM emissions in the Waste sector, [kt CO_2e].

	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
Solid Waste Disposal (5A)	173	284	201	149	116	98	77	60	48	40
Biological Treatment of Solid Waste (5B)	NO	0.88	3.0	2.9	2.6	2.6	2.6	2.6	2.6	2.6
Incineration and Open Burning (5C)	16	5.6	6.8	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Wastewater handling (5D)	19	19	22	21	22	23	24	25	26	26
WEM Waste	**207**	**309**	**233**	**180**	**148**	**131**	**111**	**95**	**84**	**76**

Table 4.29. Historical and projected WAM emissions in the Waste sector, [kt CO_2e].

	1990	2005	2023	2025	2030	2035	2040	2045	2050	2055
Solid Waste Disposal (5A)	173	284	201	150	105	74	51	34	23	15
Biological Treatment of Solid Waste (5B)	NO	0.88	3.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Incineration and Open Burning (5C)	16	5.6	6.8	7.2	14	14	14	14	14	14
Wastewater handling (5D)	19	19	22	21	22	23	24	25	26	26
WAM Waste	**207**	**309**	**233**	**181**	**145**	**115**	**92**	**76**	**66**	**59**

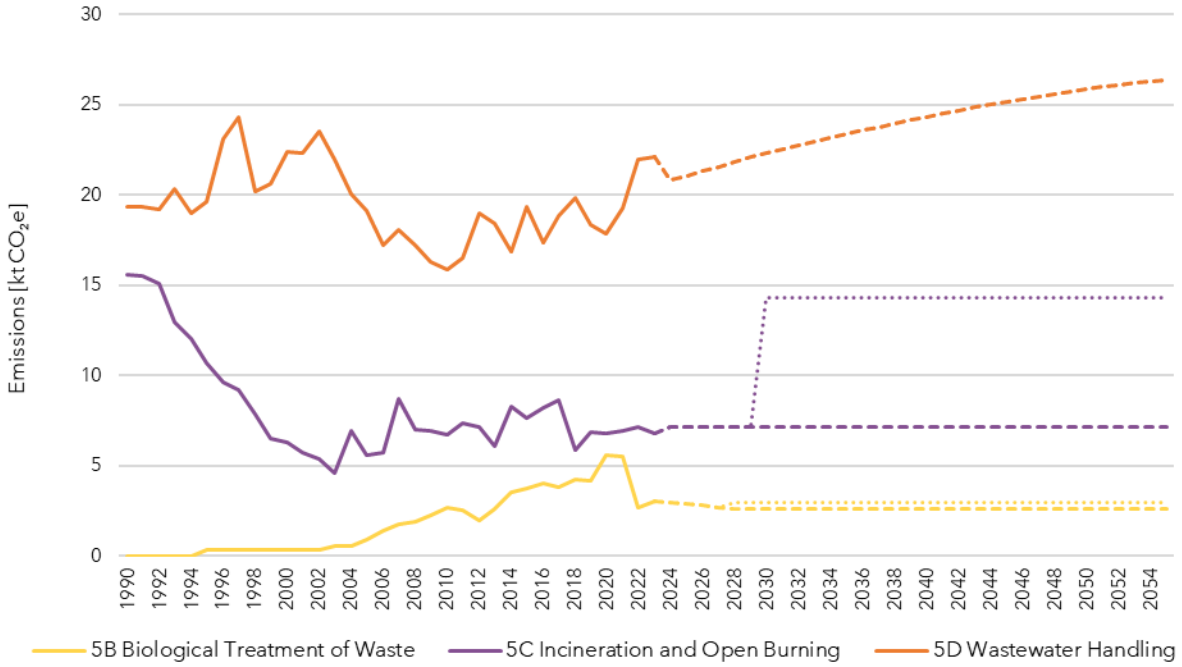

Figure 4.26. Emissions of total GHGs, WEM and WAM scenarios, for the main subsectors of Waste except 5A. Unbroken lines represent historical emissions, dashed and dotted lines represent the emissions in the WEM and WAM scenarios, respectively.

4.10.2 Methodology of Projections

The methodology used to generate projections for the Waste sector is based on the historical inventory. For details, refer to the latest edition of National Inventory Document (NID) which contains information on activity data and emission factors.

An overview of the data and assumptions used as a basis for the Waste projections can be found in Table 4.30, with further details describe below.

Table 4.30. Activity data basis for waste projections.

Waste	Basis for Projections
5A Solid Waste Disposal	Methane recovery projections from stakeholders Waste export plans of Iceland's largest waste management company and the plans of almost only landfilling inert waste at the SWDS Álfsnes after 2023 Separate collection of waste: food waste, paper, and plastics Ban on landfilling separately collected waste Extrapolation of each waste category based on historical data
5B Biological Treatment of Solid Waste	Data from the first years of operation (2020-2023) and the operation permit of the gas and composting plant, GAJA Methane collection communicated by operating company Extrapolation of historical waste amount composted
5C Incineration and Open Burning of Waste	Operation permit of incinerator
5D Wastewater Treatment and Discharge	Population projections (Statistics Iceland) Projections for fish processing in Iceland
5E Other (please specify)	Not relevant in Iceland

Waste management in Iceland is undergoing significant changes, mainly affecting the Waste subsector Solid Waste Disposal (5A). Iceland's largest landfill site, Álfsnes, has mostly landfilled inert waste since 2023, though some burnable waste continues to be landfilled. This shift has been achieved by exporting all mixed waste abroad for incineration with energy recovery, diverting separately collected organic household waste to the GAJA gas and composting plant, and sending other organic waste unsuitable for composting to incineration or meat meal and fat production. Alongside these changes, a ban on landfilling separately collected waste was enacted on January 1, 2023. However, the implementation period lasted throughout 2023, as most municipalities were not ready to enforce the ban by that date. Consequently, the impact was not noticeable until 2024.

Slaughterhouse waste is not intended to be landfilled. However, because of a lack of other treatment pathways, it is assumed in the projections that part of it will have to be landfilled – except in WAM scenario.

The projections for the subcategories Anaerobic Digestion at Biogas Facilities (5B2) and Incineration and Open Burning of Waste (5C) are based on operation permits, as well as communications between the IEEA and relevant companies regarding future operations.

The subsector Wastewater Treatment and Discharge (5D) is largely based on the population projection. However, the methane emissions from Industrial Wastewater (5D2) are estimated using projections of fish processing activity in Iceland.

In the WEM scenario, the waste amount going to SWDS until 2055 is estimated by correlating historical waste amounts going to SWDS, as reported in the NID (2025). Projections rely on extrapolations of historical trends accounting for newly implemented separate collection of food waste, paper, and plastic, as well as the export of mixed waste from the capital region.

Greenhouse gas calculations follow the approach described in NID (2025), applying the same parameters and emission factors consistently throughout the whole projected time series 2024-2055.

5 Sensitivity Analysis

5.1 Agriculture

Projections for the Agriculture sector are strongly affected by the assumptions made for the main parameters. Expert judgement is obtained whenever possible for the projections of main parameters.

A sensitivity analysis has been performed to assess the impact on emissions from the Agriculture sector if different assumptions have been made for the main parameter affecting these emissions. For the sensitivity analysis alternative trends were chosen for these parameters in such a way that the alternative could realistically have become the main projection scenario. Two sensitivity scenarios were created, one higher and one lower than the WEM projection scenario. The hope is that by selecting the sensitivity scenarios this way they can give an idea about the uncertainty of the WEM projection scenario. Currently there only exist sensitivity scenarios for the Agriculture sector, but on it is on the improvement plan for the next submission of this report to have similar sensitivity scenarios for all sectors of the inventory.

5.1.1 Parameters Varied

The sensitivity analysis for Agriculture is performed by varying three key parameters:

1. Sheep population
2. Cattle population
3. Synthetic fertiliser application

Livestock population projections are based on trends and the number of years used for each trend is based on expert judgement from experts at the Agricultural University of Iceland. These projections are one of the main determinants of greenhouse gas emissions from the Agriculture sector.

For the various sheep subcategories, livestock projections for the WEM scenario are based on the trend from 1990-2023. The high scenario is based on a 40-year trend for all sheep subcategories. The low scenario is based on 20-year trends for ewes and young sheep and a 15-year trend for rams, otherwise the ram population would have become proportionally too large. The number of lambs is not based on trends but calculated from the ewes and female young sheep populations in all scenarios. Table 5.1 shows the projected number of sheep in each scenario. A visual comparison between the different sheep projection scenarios can be seen in Figure 5.1.

Table 5.1. Projected number of sheep using extrapolation: Trend used in WEM (based on 1990-2023 data) versus a high and low sensitivity analysis, 40 and 20-year trends, respectively.

Sheep – Population	2023	2030	2040	2050	2055	Diff. 2023-2030 [%]	Diff. 2023-2055 [%]
WEM	355,512	335,531	306,546	277,561	263,068	-5.6%	-26.0%
Sensitivity - Low	355,512	325,117	277,089	229,060	205,046	-8.5%	-42.3%
Sensitivity - High	355,512	351,529	330,482	309,436	298,913	-1.1%	-15.9%
Low - WEM [%]	-	-3.1%	-9.6%	-17.5%	-22.1%		
High - WEM [%]	-	4.8%	7.8%	11.5%	13.6%		

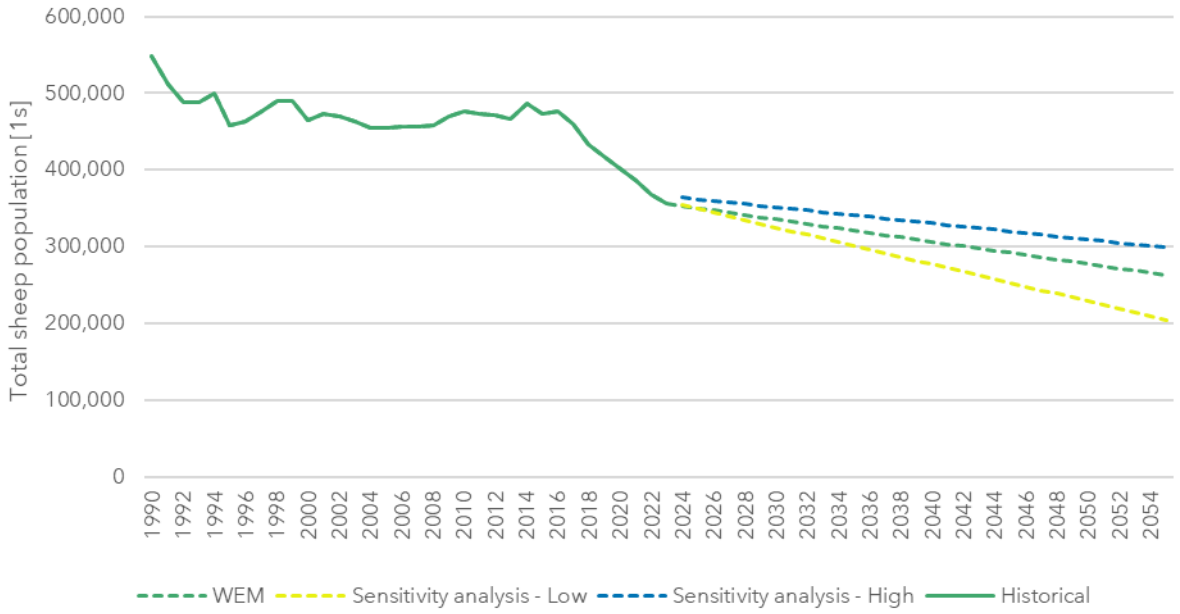

Figure 5.1. Projected number of sheep using extrapolation: Trend used in WEM (based on 1990-2023 data) versus a high and low sensitivity analysis, 40 and 20-year trends, respectively.

For the various cattle subcategories, livestock projections for the WEM scenario are trends based on different historical data ranges for different subcategories, based on expert judgement from specialists at the Agricultural University of Iceland. The projections which were previously used as WEM projections are now used for the Sensitivity - High scenario. Those are based on 1990-2023 trends. The Sensitivity - Low scenario assumes 10% lower population for each cattle subcategory in 2055 than in the WEM scenario and interpolation between those values and the latest historical population values. It is interesting to note that the current WEM total cattle population projection for 2055 is over 26% lower than using the assumptions which were used for last report, see Table 5.2. A visual comparison between different cattle projection scenarios can be seen in Figure 5.2.

Table 5.2. Projected number of cattle using extrapolation: Trend used in WEM (based on mixed length historical data ranges) versus a high and low sensitivity analysis, trend based on 1990-2023 data and 10% lower than the WEM projections in 2055, respectively.

Cattle – Population	2023	2030	2040	2050	2055	Diff. 2023-2030 [%]	Diff. 2023-2055 [%]
WEM	78,034	76,186	72,794	69,402	67,706	-2.4%	-13.2%
Sensitivity - Low	78,034	74,294	68,950	63,607	60,935	-4.8%	-21.9%
Sensitivity - High	78,034	80,462	82,499	84,536	85,554	3.1%	9.6%
Low - WEM [%]	-	-2.5%	-5.3%	-8.3%	-10.0%		
High - WEM [%]	-	5.6%	13.3%	21.8%	26.4%		

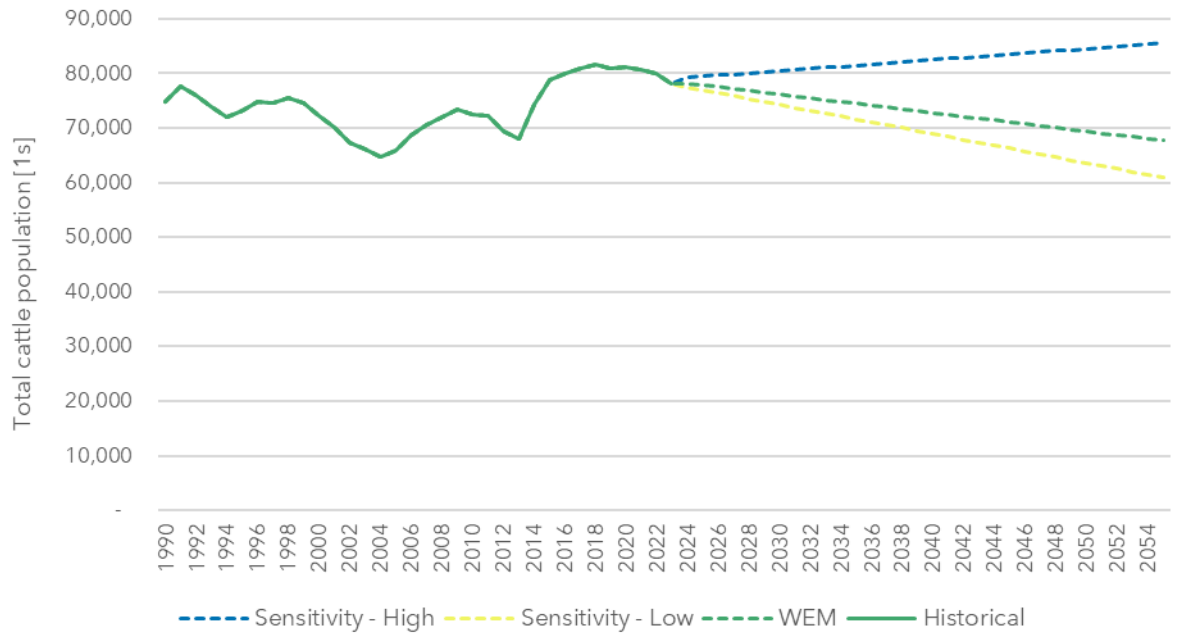

Figure 5.2. Projected number of cattle using extrapolation: Trend used in WEM (based on mixed length historical data ranges) versus high and low sensitivity scenarios, trend based on 1990-2023 data and 10% lower than the WEM projections in 2055, respectively.

The third key parameter varied for this sensitivity analysis is the amount of inorganic nitrogen fertiliser applied to soil. The WEM projections and the scenario Sensitivity – High are both a trend based on the 1990-2023 data, while the scenario Sensitivity – Low is based on the trend for the latest 15 years.

The scenario based on 15-year trend shows a lower amount of inorganic N-fertiliser use compared to the projections based on the whole historical timeline 1990-2023. The differences grew significantly larger as the projections stretched further into the future, see Table 5.3. A visual comparison between different fertiliser use projection scenarios can be seen in Figure 5.3.

Table 5.3. Projected use of inorganic N-fertiliser [t] using linear extrapolation: Trend used in WEM and the high sensitivity scenario (extrapolation of 1990-2023 data), versus a trend based on the 15 latest historical years, which is used in the low sensitivity scenario.

Inorganic N-fertiliser use	2023	2030	2040	2050	2055	Diff. 2023-2030 [%]	Diff. 2023-2055 [%]
WEM/ Sensitivity - High	9,034	9,160	9,001	8,841	8,761	1.4%	-3.0%
Sensitivity - Low	9,034	8,489	7,344	6,200	5,628	-6.0%	-37.7%
Low - WEM [%]	–	-7.3%	-18.4%	-29.9%	-35.8%	–	–

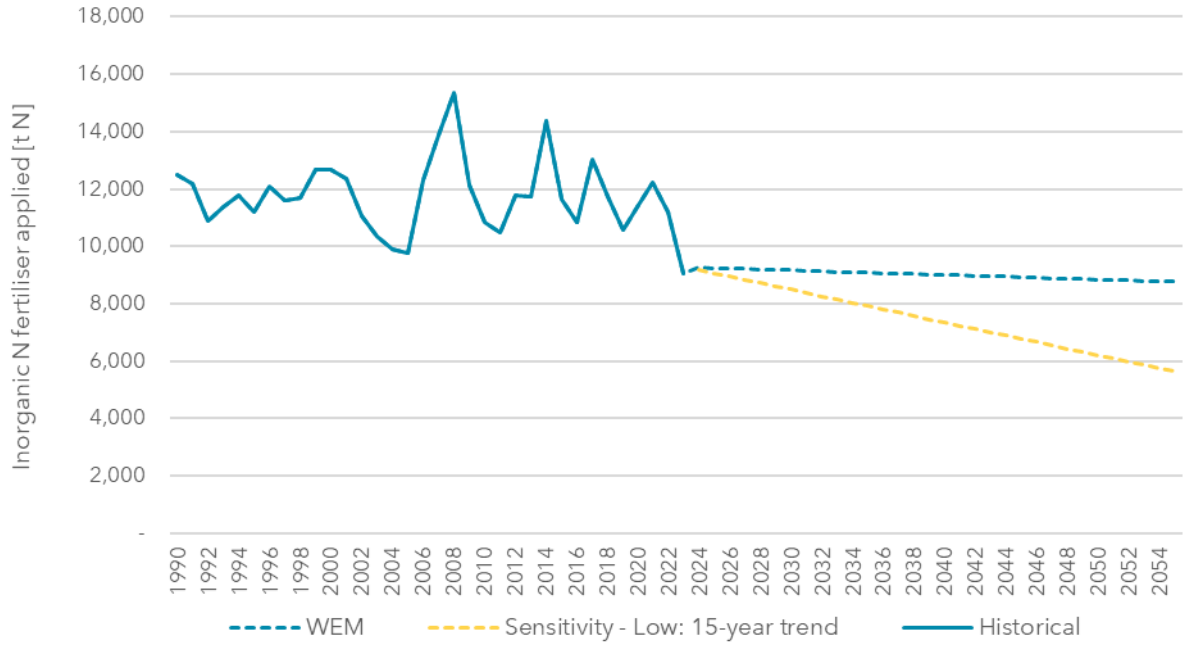

Figure 5.3. Projected use of inorganic N-fertiliser [t] using linear extrapolation: Trend used in WEM and the high sensitivity scenario (extrapolation of 1990-2023 data), versus a trend based on the 15 latest historical years, which is used in the low sensitivity scenario.

5.1.2 Sensitivity Analysis Results

Table 5.4 and Figure 5.4 below shows the results of the sensitivity analysis. All scenarios show a decrease in emissions from the Agriculture sector throughout the projected time series. The main driver for these decreased emissions, in all scenarios, is the sheep population reduction.

Table 5.4. Sensitivity analysis results for the Agriculture sector: total GHG emissions [kt CO_2e] in each projections scenario.

Agriculture	2023	2030	2040	2050	2055	Diff. 2023-2030 [%]	Diff. 2023-2055 [%]
WEM	692	676	652	629	616	-2.4%	-11.1%
Sensitivity - Low	692	668	633	599	580	-3.5%	-16.2%
Sensitivity - High	692	685	671	657	647	-1.1%	-6.5%
Low - WEM [%]	-	-1.1%	-2.9%	-4.8%	-5.7%		
High - WEM [%]	-	1.4%	2.9%	4.4%	5.2%		

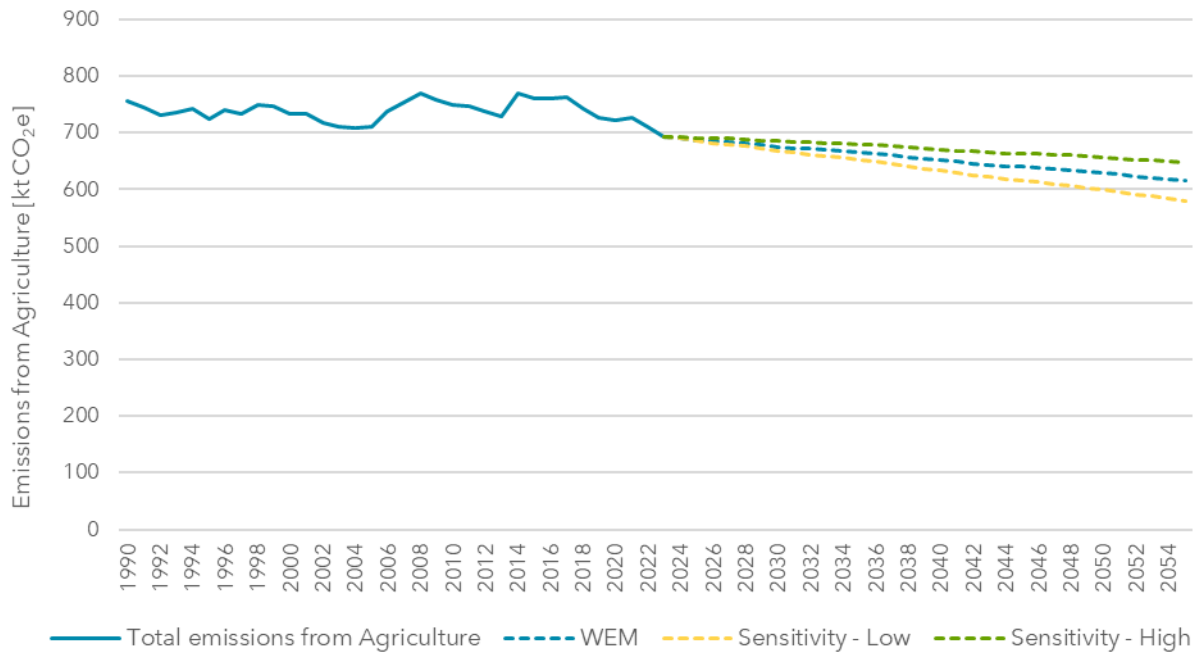

Figure 5.4. Historical and projected GHG emissions [kt CO2e] from the Agriculture sector, showing WEM projections as well as high and low sensitivity scenarios for Agriculture.

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Annex A Climate Measures at Idea Stage

The measures in the Climate Action Plan (2024) are on various stages of implementation. Measures that are still at idea stage are listed in Table A.1. These are measures that are up for discussion but have not been elaborated upon or have not been approved yet.

Some of the idea-stage measures had an estimate of their greenhouse gas emission reduction potential in the Climate Action Plan (2024). This reduction potential is, however, not included in the scenario projections in this report as these measures are ideas that have not been approved or need to be developed further before implementation.

Note that the categories in the Climate Action Plan are used in Table A.1 and they may not directly align with the IPCC categories used elsewhere in this report.

Table A.1. Climate measures at idea-stage that have yet to be defined in more detail or approved. The objective of each measure is defined, along with a short description.

Nation. ID	Measure	Objective Description
S.1. Energy production		
S.1.A.4.	**Obligation to capture greenhouse gases in new geothermal power plants after 2030**	Geothermal power plants built after 2030 to capture the greenhouse gases produced by geothermal fluids.
		New geothermal power plants built after 2030 need to be designed with carbon neutrality in mind. This requirement will be laid down in law. In order to make geothermal energy more competitive and encourage Iceland's energy companies to take advantage of the diverse opportunities inherent in minimising greenhouse gas emissions, geothermal power plants need to be designed with the objective of keeping emissions to a minimum and maximising utilisation possibilities. This aspect needs to be approached with technological neutrality, thus supporting sustainability in the use of geothermal energy, increasing Iceland's energy security, and making geothermal energy more competitive.
S.1.A.5.	**Requirement for the capture and storage or utilisation of greenhouse gases in the operation of geothermal power plants**	To reduce greenhouse gas emissions from geothermal power plants into the atmosphere by up to 95%.
		A phased requirement needs to be laid down for the capture and storage or utilisation of greenhouse gases in the processing channels of geothermal power plants, thus preventing the gases from escaping into the atmosphere.
S.2. Smaller industries		
S.2.A.1.	**Pilot project on emission-free construction projects at IRCA**	To select a construction project in the transport system to test and develop low-carbon solutions at construction sites.
		A construction project needs to be selected based on potential connection to existing energy infrastructure and project components to serve as a pilot project to lay the foundations for testing low-carbon solutions in The Icelandic Road and Coastal Administration (IRCA, *Vegagerðin*) construction projects. Mapping construction projects in the National Transport Plan (*samgönguáætlun*), considering energy infrastructure and scope, will make it possible to select a construction project and relevant project components that are suitable to serve as a pilot project for zero-emission construction projects at IRCA. This needs to be taken into account as early as possible in the design process so that the project elements and organisation of the construction project may be adapted to the new needs that arise when utilizing new energy sources.
S.2.A.2.		To select an FSRE construction project to test and develop low-carbon solutions at construction sites.

Nation. ID	Measure	Objective Description
	Pilot zero-emission construction project at FSRE	A construction project needs to be selected based on potential connection to existing energy infrastructure and project components to serve as a pilot project to lay the foundations for testing low-carbon solutions in Government Construction Contracting Agency – Government Property Agency (FSRE) construction projects. Mapping FSRE construction projects, considering energy infrastructure and scope, will make it possible to select a construction project and relevant project components that are suitable to serve as a pilot project for zero-emission construction projects at FSRE. This needs to be taken into account as early as possible in the design process so that the project elements and organisation of the construction project may be adapted to the new needs that arise when utilizing new energy sources.
S.2.A.3.	**Requirements and responsibilities for charging infrastructure at construction sites in urban areas**	To pave the way for energy transition at construction sites.
		Processes need to be clarified, and the installation of charging infrastructure at construction sites needs to be simplified in order to facilitate energy transition.
S.2.A.4.	**Implementation of an internal carbon price for public construction projects**	To take account of the carbon footprint of public construction projects in decision-making.
		Government authorities need to define an internal carbon price and issue criteria for its use in decision-making regarding construction projects, based on market conditions at any given time.
S.3. Product use		
S.3.A.1.	**Government sets clear environmental requirements for the purchase of refrigerants**	To ensure that the government purchases contain only the most environmentally friendly refrigerants available by 2025.
		A standard description of requirements needs to be prepared for public procurement of equipment containing refrigerants, to ensure that environmental requirements are met.
S.3.A.6.	**Obligation to register and tax refrigerants in imported equipment in the customs register**	To reduce the global-warming potential of imported F-gases in equipment.
		The relevant legislation needs to be changed, and a specific customs number need to be introduced so that refrigerants in imported equipment can be taxed in the same way as is done for the import of pure refrigerants in containers.
S.3.A.7.	**Increasing the return of refrigerants to waste treatment**	To increase the volume of refrigerants returned for waste treatment.
		The refrigerant recycling system needs to be reviewed, and financial incentives need to be created to increase the return of refrigerants to waste treatment.
S.4. Agriculture		
S.4.C.3.	**Encourage the use of additives in ruminant feed**	To introduce additives in feed at 30% of cow farms in 2030.
		This action involves support for farmers to use additives that reduce emissions from ruminant enteric fermentation.
S.4.C.4.	**Encourage better productivity in cattle breeding**	To increase the amount of product per cattle by 10% in 2030, as compared to 2023.
		This action aims to increase the productivity of cattle for milk and beef, i.e. achieving a greater amount of product per animal.
S.4.C.5.	**Encourage better productivity in sheep breeding**	To increase the amount of product per sheep by 10% in 2030, as compared to 2023.
		This action aims to increase the productivity of sheep for lamb meat, i.e. achieving a greater amount of product per animal.
S.4.D.1.	**Review of agricultural**	To reduce the number of hectares cultivated on organic soil by 10% in 2030, as compared to 2022.

Nation. ID	Measure	Objective Description
	subsidies to reduce the climate impact of cultivation	Agricultural subsidies need to be revised so that they contribute to positive climate impact when managing agricultural land. In this measure, farmers are encouraged to improve their management of agricultural land. Provisions will be included in contracts and regulations to prevent farmers from embarking on projects that have a negative climate impact, and a support system will also be used to promote good management of agricultural land from a climate perspective. The action will also aim to ensure that livestock manure and organic fertilisers are managed in such a way that there is as little loss as possible during handling and distribution. Consideration needs to be given to whether the provisions of Regulation no. 804/1999 on protection against water pollution caused by nitrogen compounds origination in agriculture and other commercial operations need to be made more stringent. More awareness of these rules needs to be raised, and it must be ensured that they are enforced. The measure is based on the following: • Conditions are set for agricultural subsidies, i.e. that fields are worked in the spring and not open over the winter. • Agricultural subsidies to be paid to bring sandy soil into a condition suitable for cultivation within 2 years. • No agricultural subsidies to be paid out for cultivation on drained organic soil unless it can be shown that a construction permit has been obtained. • Agricultural subsidies higher for cultivation on mineral soil than on organic soil.
S.5. Vehicles and infrastructure		
S.5.B.6.	**Increased adoption of the sharing economy in transport**	Fewer vehicles in traffic per inhabitant, i.e. better utilisation of each registered vehicle. The status and development of the sharing economy in transport needs to be analysed, a strategy needs to be formulated, and measures need to be taken to foster a better environment for the sharing economy in transport.
S.5.C.5.	**Economical disincentives for vehicles powered by fossil fuels**	Reduction in the number of new registrations of vehicles powered by fossil fuels. Vehicle taxes and excise duties on vehicles powered by fossil fuels need to be raised progressively in line with their emissions until new registrations of vehicles powered solely by fossil fuels will be prohibited.
S.5.C.8.	**International marketing campaign for Iceland as a country of vehicles running on clean energy**	Vehicle-rental companies to have a greater share of vehicles running on clean energy. Tourists visiting Iceland need to be informed of the inextricable link between clean-energy generation, untouched nature, and the use of vehicles running on clean energy.
S.5.C.9.	**Progressively more stringent requirement for the share of vehicles running on clean energy at vehicle-rental companies**	Vehicle-rental companies to have a greater share of vehicles running on clean energy, leading to a greater share of vehicles running on clean energy in the overall car fleet. In addition, most of the vehicles move on to the domestic secondary market. Vehicle-rental companies will be required to have a progressive higher share of vehicles running on clean energy. The share of new registrations of Category M1 and N1 vehicles held by vehicle-rental companies that run on clean energy shall be as follows: 30% by the end of 2025; 45% by the end of 2026; and 70% be the end of 2027.
S.6. Ships and ports		
S.6.A.3.	**Prioritising and developing clean-energy infrastructure in ports**	To increase the number of ports with clean-energy infrastructure. Cost-effective methods will be analysed, prioritisation, and construction plans for developing refilling infrastructure for ships powered by renewable energy sources (other than electricity) in ports, including green hydrogen, methanol, and ammonia.
S.6.B.9.	**Guaranteed supply of renewable fuel**	Iceland to formulate a clear vision on future policy in fuel matters and access to renewable fuel.

Nation. ID	Measure	Objective Description
		A working group will be set up to map ways to ensure sufficient access to renewable energy sources, including the feasibility of domestic production, imports, and incentive systems.
S.7. Waste management		
S.7.B.2.	**Economic incentives for waste streams**	To reduce the share of waste going to landfill to under 10% of all waste generated in 2035.
		The circular economy must be strengthened by means of targeted measures to prevent the generation of waste in Iceland and promote better handling of the waste that is generated. In addition to legislation on the circular economy, financial incentives and disincentives are effective tools to achieve that goal. It needs to be made more cost-effective for all stakeholders to sort rather than landfill. Various tools can be used to manage the price of various waste streams, whether under the responsibility of government authorities, municipalities, or the Recycling Fund. For such incentives and disincentives to be effective, it is important for them to be analysed and optimised based on their overall impact on the system, along with other systemic variables.
V. EU Emissions Trading Scheme (ETS)		
V.2.B.1.	**Guidelines on climate-friendly means of transport for public employees**	To reduce the amount of unnecessary travel, thus reducing emissions from air travel by public employees.
		Guidelines on climate-friendly means of transport for public employees are needed. Such guideline shall promote the use of environmentally friendly means of travel and remote meetings, as well as ensure consistency in aviation emission calculations.
V.2.B.5.	**Support for the purchase of an aircraft running on clean energy for scheduled flights within Iceland**	To accelerate the introduction of renewable energy sources other than Sustainable Aviation Fuel (SAF) in aviation.
		Government support to be used for the first purchase of an aircraft running on a renewable energy source for scheduled flights within Iceland, in line with technological developments and market conditions.
Þ. Cross-cutting issues		
Þ.1.A.4.	**Impact of economic incentives for energy transition**	To lay the foundations for informed decisions on economic incentives promoting energy transition.
		A regular comprehensive analysis of the impact of current economic incentives for energy transition and greenhouse-gas emissions up to 2040.
L. Land Use, Land-Use Change and Forestry (LULUCF)		
L.1.A.1.	**Implementation plan for improved land use for the climate on state and public land**	To formulate a comprehensive implementation plan aiming to change the land use of state and public land in the interests of the climate and biodiversity protection.
		This measure includes analysing where land use may be improved for the climate on state and public land, formulating a comprehensive implementation plan with defined goals, and prioritising actions. The Icelandic Treasury owns almost 430 pieces of land, and it is preferrable for the state to lead by example in changing land use in the interests of the climate. It is important to have a clear state policy on the use of state and public land, and that climate matters and protection of biodiversity are the guiding principles of that policy.
L.1.C.2.	**Forestry on land owned by the state**	To increase total sequestration by cultivated forests by 18% in 2030, as compared to 2022.
		There is great potential in forestry for carbon sequestration, not least with the cultivation of fast-growing tree species; it would be possible to increase carbon sequestration in Iceland's forests. The land owned and controlled by the state could be used for forestry in the interest of climate issues. The state needs to take a stand on whether land should be allocated for the cultivation of forests with non-native fast-growing species, and whether clear conditions need to be set in ownership policy on

Nation. ID	Measure	Objective Description
		whether species that may be considered invasive under the Nature Conservation Act may be used in cultivation.

Annex B Climate Projects

The Climate Action Plan (2024) puts forward so-called climate projects, alongside climate measures. Climate projects are not defined as climate measures, but rather projects that support implementation of the climate measures or influence them indirectly. See list of climate projects in Table B.1.

Note that the categories in the Climate Action Plan are used in Table B.1 and they may not directly align with the IPCC categories used elsewhere in this report.

Table B.1. Climate Projects to support the implementation of climate measures. The objective of each climate project is defined, along with a short description.

Nation. ID	Name	Objective Short description
S.1. Energy production		
S.1.A.1.	**Provision of information on geothermal emission accounting**	To collect and publish information on geothermal heat in emission accounting in an international context
		Information on the accounting of emissions from operating geothermal power plants needs to be collected and communicated, and the methodologies of various countries compared.
S.1.A.2.	**Standard methodology for measuring and estimating emissions from geothermal power plants**	To prepare standard methods for measuring emissions from geothermal power plants that companies will be obliged to follow
		In order to be able to ensure transparency and reliability, it is necessary to ensure that all power plants measure emissions in the most uniform way possible and that measurements are monitored.
S.1.A.3.	**Requirement for measurements of natural emissions in the licensing process**	To measure natural emission in a harmonised and recognised way before a power plant is commissioned.
		A requirement needs to be laid down for measurements of natural emissions based on the harmonised methodology and rules used in other countries and which are suitable for Icelandic conditions. There is currently a degree of uncertainty about what the level of natural emissions in geothermal areas where power plants have been built would have been if there no such power plants existed. This means that all emissions from geothermal power plants are included in Iceland's emission accounting. Since natural emissions cannot be assessed after a plant has been commissioned, it is important to measure them beforehand. Regular measuring needs to be launched in known geothermal areas in order to gain further knowledge of the natural emissions occurring in those areas.
S.2. Smaller industries		
S.2.B.1.	**Keeping more detailed records of energy sources and emissions from machinery**	To increase monitoring registrations and new registrations for equipment to reflect usage time and energy consumption in working time
		There need to be more registrations with the Administration of Occupational Safety and Health, and the relevant regulations need to be updated so that data on energy consumption and usage time can be used in the National Electricity Regulatory Authority's energy transition forecasts.
S.2.C.1.	**Data collection and source analysis of regional fossil-fuel use**	To map the use of fossil fuels around Iceland
		Collaborative project with municipal authorities on registrations of regional fossil-fuel use and analysis of a targeted reduction in its use.
S.3. Product use		
S.3.A.4.	**Collaborative project on better**	To ensure that emission accounting for F-gases reflects emissions from fishing vessels and fish processing as accurately as possible

Nation. ID	Name	Objective Short description
	assessment of the use of refrigerants by fishing vessels and fish processing	A collaborative project needs to be set up between the Environment Agency and companies in the fishing industry to map the use of refrigerants by fishing vessels and fish processing.
S.3.A.5.	**State and municipal authority plans for phasing out F-gases in their operations**	The state and municipal authorities to devise a plan for phasing out cooling systems that use F-gases with a high global-warming potential
		State and municipal authorities should lead by example and phase out F-gases in their operations. A national and municipal authority consultation group needs to be tasked with setting up an action plan for phasing out F-gases by 2030.
S.3.A.8.	**Support for the establishment of a study programme at the Technical College in 'Refrigeration and freezer engineering'**	A special study programme in refrigeration and freezer engineering to be established in Iceland
		Government authorities need to officially support visions of refrigeration and freezer engineering becoming more prominent in Iceland by means of a special study programme.
S.4. Agriculture		
S.4.A.1.	**Implementation of agricultural environmental accounting**	To ensure that emissions and sequestration are assessed by means of environmental accounting at 60% of farms by 2030
		An environmental accounting system needs to be set up for use by agricultural holdings.
S.4.B.4.	**Formulation of quality requirements for organic fertilisers in feed and food production**	To formulate quality requirements for the utilisation of biodegradable materials as fertilisers
		This action involves formulating draft quality requirements for the utilisation of biodegradable materials as fertilisers for feed and food production.
S.4.C.1.	**Research and analysis of methane emissions from livestock**	To conduct a study of enteric fermentation in Icelandic livestock
		This action involves researching enteric fermentation in Icelandic livestock.
S.4.C.2.	**Research of storage of livestock manure**	To conduct a study on pile storage to improve data on emissions from livestock manure storage
		A study needs to be conducted on the role played by livestock manure storage in agricultural emissions, and ways of reducing emissions during storage need to be analysed.
S.4.C.6.	**Agriculture as part of the carbon footprint of food production**	To develop a methodology for the carbon footprint of food production that takes account of land use
		This action involves defining a methodology to include land use in the calculation of the carbon footprint of food production.
S.5. Vehicles and infrastructure		
S.5.A.1.	**Infrastructure plan for developing an efficient network of clean-energy filling stations**	Infrastructure plan submitted to EU
		Development and implementation of a detailed infrastructure plan to ensure an efficient network of clean-energy filling stations, as well as the service level for delivery of clean energy options.
S.5.A.3.	**Regulations on simpler payment methods at clean-energy filling stations**	To bring in regulations ensuring simpler payment methods
		Users of vehicles running on clean energy need to be provided with simple payment methods at public charging or filling stations, i.e. with payment cards or contactless devices, without the need for a subscription.

Nation. ID	Name	Objective Short description
S.5.B.7.	**Interactive information source for public transport and walking and cycling routes**	To set up an interactive information source for an integrated public transport system and walking and cycling routes
		An interactive information source needs to be developed and implemented for an integrated public transport system and walking and cycling routes.
S.5.C.6.	**Legal authorisation for low/zero-emission zones**	Municipalities to have the power to prioritise walking, cycling, and public transport in certain areas within towns/cities and to encourage the use of vehicles running on clean energy, thus reducing the amount of vehicles powered by fossil fuels in traffic, improving air quality, and reducing greenhouse gas emissions and traffic congestion
		Legislation needs to be amended to ensure legal authorisation for low/zero-emission zones in Iceland.
S.6. Ships and ports		
S.6.A.4.	**Environmental fee charges in ports**	To authorise the charging of fees in ports, where such charging provides an incentive for more environmentally friendly and sustainable shipping operations
		Ports will be authorised to have their tariffs take account of environmental aspects, with reference to the energy and carbon efficiency of shipping.
S.6.B.1.	**Developing know-how on energy translation and energy utilisation**	To increase the number of crew members who have received training in efficient navigation
		Training on renewable energy sources, appropriate equipment and fuel-efficient navigation needs to be included in ship and engineer training.
S.6.B.2.	**Enhancing ocean research and monitoring of the main exploitable stocks in the ocean**	To reduce emissions from fishing vessels
		Efforts will be made to enhance marine research and prioritise funding for marine research, ensuring that marine ecosystems remain in good shape and keeping emissions from exploitation to a minimum.
V. EU Emissions Trading Scheme (ETS)		
V.1.A.1.	**Setting up a cooperation forum for government and industry**	To set up a forum for government and industry to improve transparency and information flow between them
		This forum is intended to ensure transparency and dialogue by discussing the relevant regulations (Fit for 55) and innovative solutions, and to offer training on the relevant regulations.
V.1.B.3.	**Developing a framework for energy audits**	To establish a regulation on conducting and following up on energy audits of operators in industry, so that allocations to operators are not reduced owing to the lack of a regulatory framework
		A regulation on conducting and following up on energy audits of operators in industry needs be established, in accordance with the ETS Act, which operators will implement to ensure that the allocation of emission allowances is not impaired.
V.2.B.6.	**Government policy on energy transition for international flights**	Government authorities to support energy transition for international flights
		Energy transition for international flights will not happen without the introduction of renewable fuel on aircraft. Energy transition for international flights has begun elsewhere in the world, and the government can influence the operating environment of Icelandic air operators in the coming years. The recent report of the working group on energy transition for aviation, entitled 'Aviation energy of the future', examines which ways could be used to speed up the energy transition for aviation and whether it would be feasible to produce renewable fuel for international flights in Iceland. That report is an important step in the direction of creating an operating environment in Iceland that is favourable for Icelandic air operators in the future.
Þ.1 Cross-cutting measures – Financial incentives		
Þ.1.A.8.		To increase sustainable investment by pension funds

Nation. ID	Name	Objective Short description
	Sustainable investment by pension funds	The legislation governing the investment powers of pension funds needs to be amended to make it easier for them to make sustainable investment.
Þ.1.A.10.	**Government and industry consultation groups on targeted incentives for climate-friendly investment**	Targeted financial incentives for large industries in Iceland
		Consultation groups between government and certain industries on targeted incentives for climate-friendly investment will be set up. It is important to ensure the competitiveness of Icelandic industries and economic predictability in order to ensure that industry take part in energy transition.
Þ.1.B.2.	**Revision of the ownership policy of public companies for certain industries**	To reduce emissions and clarify the role of public companies through ownership policies in government climate priorities
		General ownership policy already considers climate goals, but in cases where there are specific annexes for individual companies or specific sectors, the specific priorities for the relevant parties will be reviewed and tweaked.
Þ.1.C.1.	**Visibility of the state's carbon footprint**	To reduce the state's carbon footprint by means of targeted collation and presentation of data
		This action involves more targeted data collection and presentation regarding the carbon footprint of government operations, in the most diverse way possible in terms of operations, service provision, procurement, and premises management.
Þ.1.C.2.	**Transparency of government revenue and expenditure for climate action**	To ensure the transparency of and information on state revenue and expenditure for climate action, including the ETS system
		Regular publication of information on estimated and historical government revenue and expenditure for climate issues, e.g. linked to the sale of emission allowances, payments to foreign funds, etc.
Þ.1 Cross-cutting measures – Social incentives		
Þ.2.A.1.	**Developing and implementing priorities for climate-friendly schools, curricula, and teacher training**	To place greater focus in the education system on climate-friendly schools, curricula, and teacher training and professional development, by means of extensive cooperation and the active involvement of children and young people in policy making
		A holistic approach to bringing education on sustainability at all school levels, with a focus on climate-friendly policies on schools, core curricula, and teacher training and professional development.
Þ.2.A.2.	**Strengthen the role of universities in sustainable transition**	To create the necessary conditions for universities and provide financial incentives to strengthen their activities and role in systemic and green transitions
		Performance-based financing of higher education to promote increased sustainability and long-term economic growth based on ingenuity and knowledge.
Þ.2.A.3.	**Continuing education in the interests of climate issues**	To develop a learning system for life-long and continuing education needs to facilitate sustainable transition, by training staff to meet changing skill requirements and market conditions
		A learning system for life-long and continuing education needs to be developed to facilitate sustainable transition, by training staff to meet changing skill requirements and market conditions.
Þ.2.B.1.	**Climate lenses for the innovation and research environment**	To increase the number of sustainable solutions through innovation
		Review of public support for the financing of innovation, both in terms of grants through competitive funds and participation in the financing of start-up companies.
Þ.2.B.2.	**Reflecting climate challenges in the fund system**	Increased focus on the competitive funds – whether Icelandic or international – to which Icelandic parties can apply for funding, to enable promotion of a sustainable transition
		Contributions to the Icelandic competition fund and EU cooperation programmes have been increased, while work is being done on revising and restructuring for increased efficiency and impact in the interests of society and climate issues.

Nation. ID	Name	Objective Short description
Þ.2.C.1.	**Collecting and distributing information on climate issues**	To disseminate climate information in an accessible and reliable way, based on reliable data
		Increase data collection and research to support information flow on climate issues. A communication strategy is needed with consistent use of words and concepts to raise awareness of the issue and appeal to society as a whole.
Þ.2.C.2.	**Increasing the number of climate-friendly public-health indicators**	To increase the number of public-health indicators that are significant for both public health and the environment and reduce negative climate impact
		It needs to be assessed what public health indicators are missing, what data exist and what data are missing to increase the number of public-health indicators relating to climate impact, as well as identify, find, and publish more climate-related indicators
Þ.2.C.3.	**Reviewing the checklist for health-promoting activities**	To review the existing checklist for health-promoting activities in relation to climate priorities, sustainability, increased prosperity, and responsible consumption
		The Directorate of Health checklist for health-promoting work by the needs to be reviewed in relation to climate priorities, a prosperous economy and responsible consumption, with a view to systematically supporting municipalities, schools, and workplaces.
Þ.2.C.4.	**Review of official nutrition recommendations**	To contribute to improved public health with nutrition that has a positive effect on both public health of people and the environment
		The priorities of the Nordic Nutrition Recommendations 2023 need to be incorporated into official nutrition recommendations, taking into account Icelandic circumstances.
Þ.2.D.1.	**Revising the Cabinet of Iceland's climate policy**	The Cabinet needs to set an example in climate matters and sequester more carbon dioxide than it emits. Greenhouse gas emissions ned be reduced in all Cabinet activities, and all emissions need to be carbon offset – and more – by the end of 2019. The Cabinet will also reduce its CO2 emissions by a total of 40% by 2030, as compared to 2018.
		The Cabinet of Iceland's climate policy needs to be adapted to cover state institutions, and work needs to be done on a new action plan for 2024–27.
Þ.2.D.2.	**Comprehensive strategy for energy transition**	To establish a clear vision for the implementing energy transition throughout society
		A report needs to be submitted on the government's priorities for energy exchange, the necessary infrastructure, and the generation of renewable energy sources based on the availability of raw materials and market demand.
Þ.2.D.4.	**Cooperation between the state and municipalities on carbon neutrality**	A greater share of municipalities cooperating with the state in meeting the challenges posed by climate issues
		Ongoing cooperation between the state and municipalities needs to be formulated and clarified with reference to Iceland's climate goals.
Þ.2.D.5.	**Land-use planning that supports the goal of carbon neutrality**	To have guidance on how to reduce greenhouse-gas emissions and increase carbon sequestration by means of land-use planning
		Guidance needs be drafted up on how land-use planning can be used to reduce greenhouse-gas emissions and increase carbon sequestration.
Þ.2.D.6.	**Amending the regulatory framework for submitting environmental information**	To establish a regulation regarding the submission of environmental information by various operators, to replace the submission of green accounting
		The submission of environmental information from operators, including information on the use of raw materials and on the release of polluting substances (including greenhouse gases) needs to be simplified.
Þ.2.D.7.	**Implementing the EU Corporate Sustainability Reporting Directive (CSRD)**	To coordinate sustainability information in company financial statements
		The EU Directive and ESRS standards need to be implemented in order to harmonise sustainability information in the financial statements of economic entities in Iceland.
Þ.2.D.8.	**Analysing the climate impact of**	To assess specifically the climate impact of all legislative proposals submitted to the Icelandic parliament

Nation. ID	Name	Objective Short description
	legislative proposals	Criteria (guidelines and methodology) to be used to assess the climate impact of legislative proposals need to be established.
Þ.2.D.9.	**Common and interconnected climate goals between the state and individual municipalities or regions**	Municipal authorities to establish an action-oriented strategy to reduce community emissions in their area based on recognised criteria relating to Iceland's overall emissions
		There will be analysis of how to improve the capacity of municipal authorities to formulate and enforce climate actions, by means of extra guidance and an emissions dashboard.
Þ.2.E.1.	**Social impact of climate action**	Government climate action to take social impact into account and promote a fair green transition
		Guidelines need to be developed for assessing the social impact of government climate action and a process for aligning actions with the goals of a fair green transition.
Þ.2.E.2.	**Iceland's spillover effects in the interests of global responsibility**	To gain an overview of Iceland's spillover effects in order to be able to better map, measure, and limit such effects overseas by means of an action plan
		A working group needs to be set up to draft a proposal for the future vision, goals, and action plan to minimise Iceland's negative spillover effects.
Þ.2.E.3.	**Green Climate Fund**	Promote the reduction of greenhouse gas emissions in low- and middle-income countries.
		Financial contribution to special funds of the UNFCCC with the aim of reducing greenhouse gas emissions in low- and middle-income countries and support climate change adaptation in developing countries.
L. Land Use, Land Use Change and Forestry (LULUCF)		
L.1.A.3.	**Comprehensive plan for better data and information in Iceland's emission accounting**	To have in place a comprehensive 4-year plan (2024–27) for better data and information to enable Iceland to meet its commitments regarding method levels and the approach to assessing emissions and sequestration
		This action aims to develop methods and set up a long-term monitoring project to assess the amount of and changes in carbon in Icelandic ecosystems based on known assessment parameters, so that no later than 2030 it will be possible to estimate the carbon reserves of all ecosystems in Iceland's emission accounting, changes in carbon reserves, and the impact of land use and reclamation on carbon reserves. Pursuant to the EU's more stringent requirements stemming from the new regulation on the quality and necessity of data and methodologies for land use, land-use change and forestry (LULUCF), in order to reduce uncertainty and improve knowledge and presentation, figures from all the main land-use categories need to have reached method level 2 (i.e. coefficients based on Icelandic research) by 2026 and method level 3 (i.e. coefficients based on computational models for Iceland) by 2030.
L.1.B.2.	**Formulating a methodology for generating certified carbon credits via the restoration of dryland ecosystems**	To formulate a methodology for generating certified carbon credits via the restoration of dryland ecosystems
		Many Icelandic dryland ecosystems are in a disturbed state and restoring them will make it possible to sequester a large amount of carbon, increase ecosystem activity, and foster biodiversity. This action consists in creating a procedure for reclaiming drylands and in reclaiming the first piece of dryland following the rules and standards needed to enable carbon sequestration in those areas to be recorded as high-quality carbon units. Creating such a procedure is meant as an incentive and model for private entities, businesses, and institutions to engage in reclaiming drylands that meet the relevant rules and standards.
L.1.C.4.	**Developing a methodology for producing certified carbon credits through wetland reclamation**	To formulate a methodology for generating certified carbon credits via the restoration of wetland ecosystems
		This action consists in creating a procedure for reclaiming wetlands and in reclaiming the first piece of wetland following the rules and standards needed to enable carbon sequestration in those areas to be recorded as high-quality carbon units. Creating such a procedure is meant as an incentive and model for private entities, businesses, and institutions to engage in reclaiming wetlands that meet the relevant rules and standards.

Nation. ID	Name	Objective Short description
L.1.C.5.	**Adapting forests to climate change**	Forestry to take into account the increased pressure caused by climate change
		Forests need to be adapted to climate change by enhancing the selection and breeding of the main tree species used in Icelandic forestry, testing new species and ecotypes, and maintaining intensive research on their adaptation. Forests also need to be adapted to the possible increased frequency of wildfires. This is to be done planning forestry areas, mixing species, pruning at the right times, and felling and regenerating forests in the right way. Handling forests correctly makes it possible to enhance both their carbon sequestration and their tolerance.
L.1.D.1.	**Land-use planning that supports the goal of carbon neutrality**	To protect carbon-rich ecosystems, reduce greenhouse-gas emissions, and increase carbon sequestration by means of land-use planning
		Municipal land-use plans play an important role in climate policy, as decisions are made about the structure of inhabited area and land use. By means of the relevant priorities and measures in land-use planning, there are various ways to contribute to reducing greenhouse-gas emissions and increasing carbon sequestration. Changes in land use have an impact on biodiversity, and biodiversity needs to be considered when setting policy and implementing land-use plans. It is important to provide municipal authorities with appropriate tools and the best available data at all times.
L.1.D.2.	**Analysis of administrative tools for the protection of carbon-rich ecosystems**	To analyse administrative tools to prevent the drying-out of wetlands
		This action involves mapping and analysis administrative tools that contribute to better protection of carbon-rich ecosystems. The regulatory framework relating to the protection of wetlands needs to be analysed, and weaknesses concerning permits, authorisations, and sanctions need to be mapped.
L.1.D.3.	**Regional and local plans for land reclamation and forestation**	To have in place plans for all parts of the country and municipalities for the protection and development of carbon-rich ecosystems
		Work needs to be done on creating regional and local plans for land reclamation and forestry – in cooperation with the relevant municipal authorities, landowners and NGOs – addressing priorities by region and how best to act in respect, for example, of carbon neutrality targets, with the protection of biodiversity as a guiding principle. This lays the foundation for a common vision of the opportunities present in the sustainable use of land, the development of resources, soil protection, and the protection and restoration of ecosystems, thus contributing to more harmony and consensus on action to be taken.
L.1.D.4.	**Declaration of intent on cooperation in the field of protection and restoration of carbon-rich ecosystems**	To create a platform to foster understanding of the importance of protecting and restoring carbon-rich ecosystems
		This action involves setting up a nationwide cooperative project of stakeholders on protecting and restoring carbon-rich ecosystems. The declaration of intent should include a statement on the importance of protecting Iceland's carbon-rich ecosystems. It should also emphasise rebuilding and restoring disturbed ecosystems and their biodiversity. By protecting and restoring ecosystems, the resistance and resilience of ecosystems against natural shocks and hazards are simultaneously improved, as well as their carbon sequestration increased.
L.1.D.5.	**Reviewing the guidelines for assessing the environmental impact of construction projects and plans**	To divert projects away from carbon-rich ecosystems with better guidance on assessing the environmental impact of construction projects and plans and appropriate follow-up
		This action involves reviewing the guidelines for assessing the environmental impact of construction projects and plans, so that the impact on the climate of disturbing carbon-rich ecosystems is assessed and quantified. The guidelines for assessing the environmental impact of construction projects and plans need to be review, so that greenhouse-gas emissions are assessed and quantified. Guidelines for assessing the environmental impact of construction projects were issued in 2005, and improvements were made in 2012, but since then legislation and regulations on assessing the environmental impact of construction projects and plans have been updated, while the guidelines have not.