Climate account 2024

Orkuveitan

Reykjavík Energy

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The climate account

The greenhouse gas (GHG) emissions are compiled annually, where the total emissions are calculated based on operations (activity data) from January 1st to December 31st each year. The climate account is conducted according to the methodology of the corporate standard Greenhouse Gas Protocol (GHGP) and in accordance with the international standard ISO 14064-1. The climate account has been independently reviewed and verified with limited assurance by Bureau Veritas Denmark.

Purpose and Objective of Reykjavík Energy's (RE) Climate Account

The purpose of RE's climate account is to transparently communicate RE's impact on climate change and its efforts to reduce those impacts. This includes informing about the company's GHG emissions, specifying the types and amounts of emissions due to its operations, reporting plans and actions taken by the company to reduce emissions, improve energy efficiency, and transition to more sustainable practices.

Overall, the climate account of RE is a means to communicate the commitment to increased sustainability, present its environmental impact, and provide stakeholders with a better understanding of the company's climate-related initiatives and performance.

Intended Use and Users of the GHG Inventory

RE's climate account is used by its owners, City of Reykjavík, the Township of Akranes, and the Municipality of Borgarbyggd, along with politicians, government agencies, licensing authorities, scientists, environmental organizations, and the public. Environmental authorities rely on the data to assess the effectiveness of adaptation and mitigation actions in climate issues and to monitor progress towards climate goals. Scientists use the data for climate analysis, and licensing authorities, environmental authorities, the public, and RE's employees use the information to advocate for sustainable practices and clarify responsibility for emissions from RE. Overall, RE's climate account contributes to transparency, accountability, and informed decision-making in addressing the climate crisis.

Frequency and Accessibility of the Climate Account

Annually, RE compiles information about greenhouse gas emissions, mitigation actions for those emissions, carbon sequestration in land reclamation and afforestation, along with the net emissions from RE and publishes it publicly on its website. This includes an overview of the status of climate actions in relation to the company's climate goals.

Monitoring of the Climate Account and Climate Goals

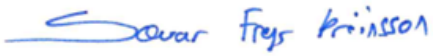
RE's climate group consists of representatives from RE's Environmental Division, Research and Innovation, and all subsidiary companies. RE's role is to update the climate account and climate goals of the company as appropriate and for RE's Annual Report. RE initiates projects that contribute to the company achieving its climate goals and improve the climate account. Representatives of RE's Climate Group meet monthly.

Materiality

The materiality threshold of the ISO 14064-1 verification is 5%.

Responsibility for the Climate Account

The CEO of Reykjavík Energy is responsible for and confirms the results of the climate account and carbon footprint with the signature below. RE's Environmental Division is responsible for producing the report.



Reykjavík Energy

RE Mission

Orkuveitan supports growing communities, households and businesses through innovation in energy supply, utility operations and carbon fixation.

Reykjavík Energy (RE) is an energy- and utility company, jointly owned by the City of Reykjavík, the Township of Akranes, and the Municipality of Borgarbyggð. RE produces energy, hot and cold water, and develops utility infrastructure for three quarters of the Icelandic population.

Reykjavík Energy (RE) consists of four subsidiaries: Veitur Utilities, Reykjavík Fibre Network, ON Power, and Carbfix. Veitur Utilities operates electricity distribution, district heating, cold water supply, and wastewater utility for up to 75% of households in Iceland and as such provides the basic infrastructure for most of the Icelandic society.

Veitur Utilities

RE has been crucial for the development and urbanization of the capital region, significantly improving the living conditions of its residents. In addition to Veitur Utilities

Reykjavík Fibre Network

(IS. Ljósleiðarinn) is at the forefront of developing and managing a nationwide optical fibre network, serving as a fundamental component in facilitating the shift of communities towards a more sustainable future with faster and more efficient telecommunications.

ON Power

Operates two geothermal power plants and a small hydropower plant that together produce approximately 17% of the electricity in Iceland. Together, the geothermal power plants produce hot water for over half of the capital region. Furthermore, ON Power has been leading the energy transition and has emphasised the installation of charging stations for electric vehicles (EV) both along the main routes around Iceland and within urban areas. This has been done in response to the rapid growth of EVs in the country, ensuring the rising demand for charging infrastructure is met.

Carbfix

RE's newest subsidiary, Carbfix, is a global leader in developing and implementing solutions to tackle global warming through Carbon Capture and Storage (CCS). This aligns well with RE's previous steps towards improving living conditions and quality of life through innovation.

Organizational boundary

The organisational boundary of the climate account is defined by the operational control approach. Reykjavík Energy (RE) has operational control over its subsidiaries, namely ON Power, Veitur Utilities, Reykjavík Fibre Network, and Carbfix. Associated companies in which RE holds a minority stake are not considered within the operational control approach. These are Orkuskólinn REYST, Netorka hf., Íslensk Nýorka, and Aflvaki. Associated companies are those where RE has limited influence over the financial and operational policy but does not have operational control. The company name Reykjavík Energy (RE) is used when referring to all the companies within the organisation and organisational boundary.

Reporting boundaries

The reporting year for the climate account is 2024, with 2016 as base year.

Emissions sources are defined according to the GHG Protocol, with scope 1 (direct emissions), scope 2 (indirect emissions from energy use), and scope 3 (other indirect emissions) along with a scope for carbon insetting and a specific scope for carbon dioxide (CO_2) emissions of biological origin.

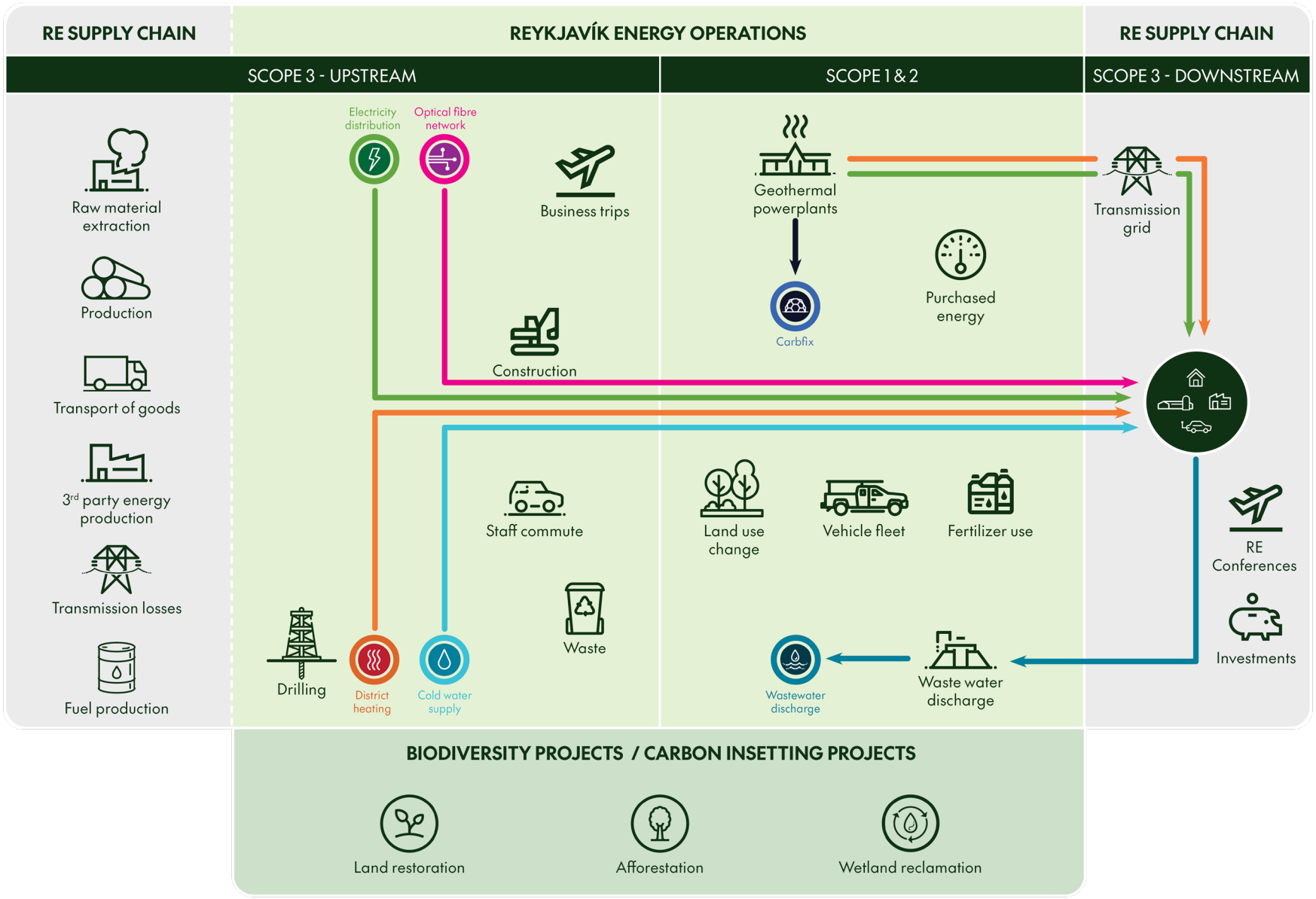
All emissions sources from scope 1 and 2 are included, while emissions sources in scope 3 are selected based on the significance criteria shown in the table on page 24. Exclusions are listed and explained on pages 23-24.

The reporting boundaries for RE's climate account are illustrated in the figure on page 6. The coloured lines, in the middle of the figure, represent the value streams operated by Veitur Utilities, ON Power, Ljósleiðarinn and Carbfix. Namely district heating and hot water production (orange), cold water supply (light blue), wastewater discharge (blue), electricity distribution and production (green), optical fibre network (pink), and carbon capture and storage (dark blue).

RE is directly responsible for emissions from its geothermal powerplants, vehicle fleet and wastewater discharge, see discussion in Reykjavík Energy, page 3. These are reported under scope 1.

Given the scope of RE's operations, that is basic infrastructure for most of the Icelandic society, the company is responsible for expanding and maintaining its utility systems. Much of the activities associated with this expansion and maintenance are outsourced to contractors, resulting in emissions that RE is indirectly responsible for. Further up the supply chain, this also results in emissions from the production and transportation of the goods procured in association with RE's operations. These indirect emissions are included in the reporting boundary along with the rest of the value chain, see figure on page 6.

Reykjavík Energy Organizational boundary


RE SUPPLY CHAIN
REYKJAVÍK ENERGY OPERATIONS
RE SUPPLY CHAIN
SCOPE 3 - UPSTREAM
SCOPE 1 & 2
SCOPE 3 - DOWNSTREAM
Raw material extraction
Production
Transport of goods
3rd party energy production
Transmission losses
Fuel production
Electricity distribution
Optical fibre network
Business trips
Construction
Drilling
District heating
Cold water supply
Staff commute
Waste
Geothermal powerplants
Carbfix
Purchased energy
Land use change
Vehicle fleet
Fertilizer use
Wastewater discharge
Waste water discharge
Transmission grid
RE Conferences
Investments
BIODIVERSITY PROJECTS / CARBON INSETTING PROJECTS
Land restoration
Afforestation
Wetland reclamation

Sustainability policy and climate goals

From RE's corperate strategy:

Certified Net Zero by 2040 based on the best standards and international implementation of Carbfix

Reykjavík Energy (RE) has committed to showing respect for the environment, resources, and the community in accordance with the company's ownership policy. RE's sustainability policy forms the basis for successful decision-making and good collaboration, built on information transparency. RE seeks feedback from stakeholders on the sustainability of its activities and responds to suggestions responsibly. The sustainability policy is based on RE's values – initiative, foresight, efficiency, and integrity - and is presented in alignment with the guiding principles of the company's ownership.

Within RE's operations, the most evident tasks involve mitigating and adapting to climate change with an increased emphasis on actions supporting the circular economy. By servicing up to two thirds of households in Iceland and being crucial for the development and urbanization of the capital region, RE will play a significant role in determining how Iceland succeeds in these tasks.

SBTi Net-Zero targets

In 2024 Reykjavik Energy validated their Net-Zero SBTi targets, Reykjavik energy therefore aims to achieve carbon neutrality in its operations by 2030, as well as throughout its supply chain by 2040.

The climate goals are validated by the Science Based Target initiative (SBTi) and comply with climate science requirements to keep global temperature rise below 1.5°C by 2030 and achieve Net Zero by 2040.

In RE's climate account, 2016 was selected as the base year due to its representation of RE's typical GHG profile. Since then, RE has tracked its progress in reducing emissions and aligning with the climate goals set for 2030 and 2040.

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

THE NET ZERO STANDARD
APPROVED NET-ZERO TARGETS

Reykjavik Energy climate actions

To achieve its climate targets, RE has outlined significant steps in its emissions reduction strategy. These include the complete implementation of the Carbfix injection method at the Hellisheiði geothermal power plant in 2025, energy transition in the vehicle fleet and fostering an energy transition in construction processes, as well as encouraging the use of sustainable materials in procurement. See more about RE's actions in Reykjavik Energy's Climate Action Plan.

Reykjavík Energy's science based targets

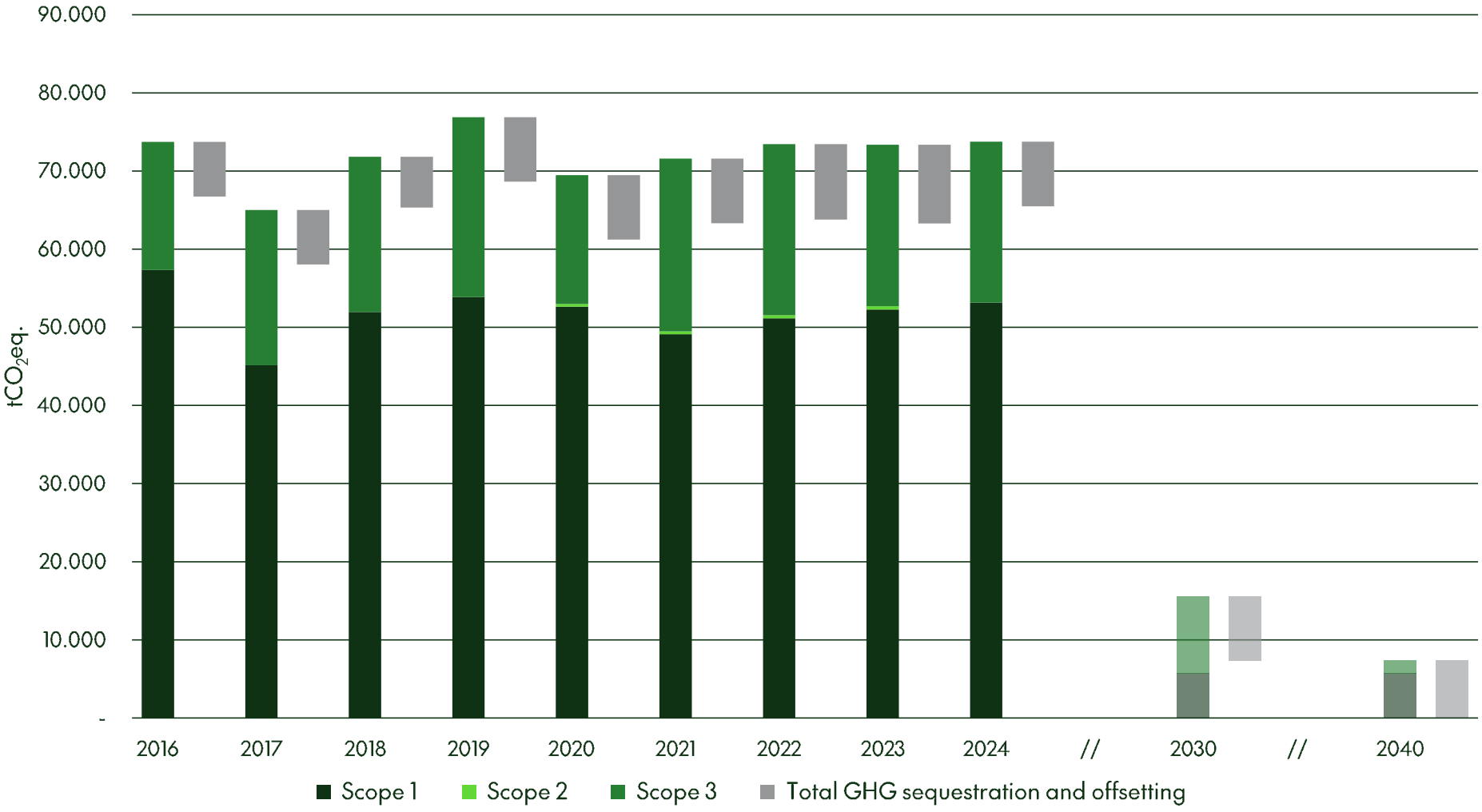
Scope	Unit	Base year	Goal 2030 1.5 °C	Goal 2040 Net-Zero
Scope 1 (Direct emissions from energy production)	tCO_2eq/MWh	2016	90.1% reduction	90.1% reduction
Scope 1+2 (Except for direct emissions from energy production)	tCO_2eq	2016	90% reduction	90% reduction
Scope 3	tCO_2eq	2016	40% reduction	90% reduction

Key climate related initiatives at Reykjavík Energy

Initiatives	Tools	Status	Description	Business Units
Energy Transition • Energy transition in drilling projects • Energy transition in trench work • Energy transition in the RE car fleet	Tenders	Implemented	Award points or make requerments in tenders for use of sustainable fuels in contractor work.	
	Internal carbon price	Implemented	The internal carbon price, 15,000 ISK/tCO_2eq, is used as a tool in decision-making.	
	Emission free construction sites	Under Consideration	Speed up and simplify the process of short-term connections to electricity within Veitur's electricity distribution system	
	Hydrotread vegetable oil (HVO)	Under Consideration	Use of HVO as a trasition fuel until more electric machinery becomes available.	
Sustainable Procurment • Procurment of low-carbon products • Circular thinking	Tenders	Implemented	Award points or make requerments in tenders for low-carbon products, e.g. recyceled steel.	
	Internal carbon price	Implemented	The internal carbon price, 15,000 ISK/tCO_2eq, is used as a tool in decision-making.	
	No trench solutions and pipe lining	Implemented	When possible, lining pipes instead of replacing them. This uses solutions that reduce the need for extensive trench digging.	
	Recycling of materials	Under Consideration	Explore oppertunites to better recycle parts of the pipes at the end of their life	
Low-Emission powerplants • Carbon capture and injection	Hellisheiðavirkjun - pilot	Implemented	The pilot plant, commencing in 2016, captures up to 30% or 12.000 tCO_2 from the Hellisheiði power plant	
	Hellisheiðavirkjun - Full scale	Under construction	Project Silverstone will be able to capture up to 34,000 tCO_2 from the Hellisheidi power plant in addition to the pilot plant.	
	Nesjavellir - pilot	Implemented	The pilot plant, commencing in 2023, captures up to 9% or about 1,200 tCO_2 from the Nesjavellir power plant.	
	Nesjavellir - Full scale	Under Consideration	Capture and injection facility in addition to pilot to capture at least 85% of CO_2 from Nesjavellir power plant	
Forward-looking Utitlies • Sewerage • Use of F-gases	Increased sewerage cleaning	Under Consideration	Increased cleaning can reduce the release of pollutants and nutrients into the sea. For examle nitrogen that can turn into N_2O when released into the sea.	
	Innovation projects	Implemented	Innovative projects to limit the substances that end up in the sewer system, and increase the circular use of resources.	
	Tenders	Under Consideration	Requirement to purchase equipment that does not use SF_6 or HFCs	
	Preventative maintenence	Implemented	Ensure no SF6 leaks occur from equipment or construction through proper maintenance.	
Nature based solutions • Land reclemation • Afforestation	Restoration of natural vegetation	Implemented	Systematic efforts have been made to restore natural vegetation and the environment in areas affected by RE's operations, as well as restoration of unvegetated or sparsely vegetated areas.	
	Planting of native tree species	Implemented	Restoring natural birch forests to strengthen biodiversity while also maintaining older afforestation areas.	

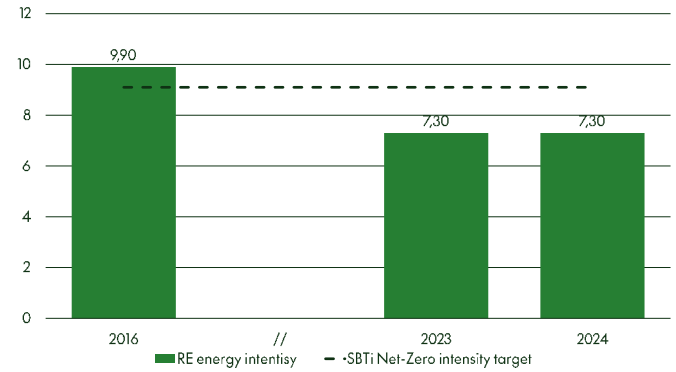
Key figures in 2024

Total GHG emissions, tonne CO_2eq, for Reykjavik Energy



Emissions intensity of gross energy generation

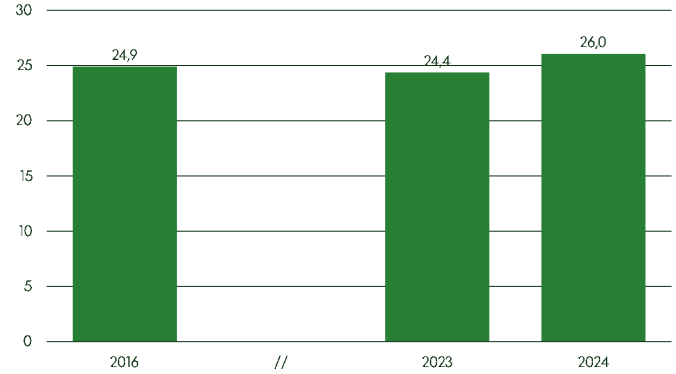
gCO_2eq/kWh



Since 2016 emissions per kWh of generated energy at Orkuveitan has decreased by 26%, and is lower than the SBTi Net-zero intentisy target for the power sector. Total energy generation has increased by 20% while total emissions from energy production have decreased by 7% .

Emissions intensity of treated wastewater

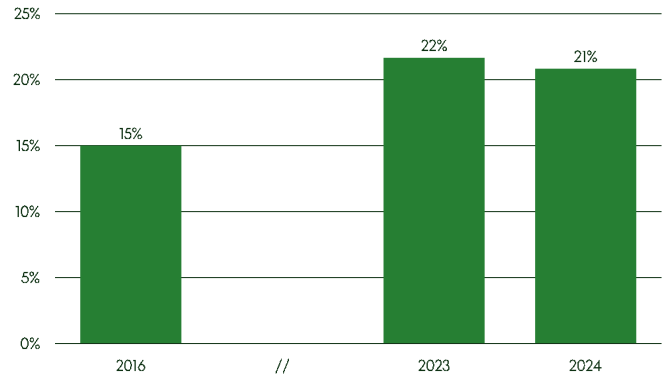
gCO_2eq/m^3



Since 2016 emissions per m^3 of treated wastewater at Orkuveitan has increased by 5%. Total amount of wastewater coming though Veitur's sewereage utility has increased by 25%, while total emissions from wastewater have increased by 31% since 2016.

Share of captured carbon dioxide

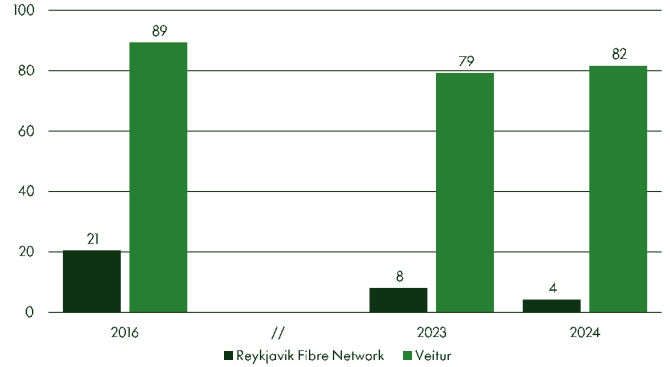
% of CO_2 captured and sequestered from Hellisheiði and Nejsavellir



Since 2016 emissions the share of CO_2 from ON Powers geothermal powerplants that has been captured and reinjected using the Carbfix method has increased by 6%. The total amount of captured and sequestered CO_2 has increased by over 3,000 tCO_2eq or 35%.

Utility emission intensity

$kgCO_2eq/m$ new utility netwroks



Since 2016 upstream emissions per m of new utility networks at Veitur has decreased by 9%, and by 79% at Reykjavík Fibre Network. This includes the total emissions from purchased goods, capital goods and services at Veitur and Reykjavík Fibre Network over the meters of new utility network, including the renewal of old utility networks.

Greenhouse gas emissions overview

Total GHG emissions in 2024

Scope 1: **53,160** $tCO_2eq.$

Scope 2: **0** $tCO_2eq.$

Scope 3: **20,585** $tCO_2eq.$

In 2024 the Reykjavík Energy's (RE) total direct and indirect greenhouse gas (GHG) emissions amounted to 73,745 tonnes CO_2 equivalent, and net emissions were 65,450 tonnes CO_2 equivalent. The primary sources of these emissions were, direct emissions from RE's geothermal power plants, nitrous oxide (N_2O) emissions from wastewater discharge and indirect emissions from procurement. RE's emissions are categorized into three scopes: Scope 1 (direct emissions) which accounted for approximately 72% of total emissions, scope 2 (indirect emissions from purchased energy) which accounted for 0%, and scope 3 (all other indirect emissions) comprised 28%.

	2016	2017	2018	2019	2020	2021	2022	2023	2024
Scope 1									
Geothermal Powerplants	54,200	42,380	48,820	50,820	49,700	46,420	48,100	48,780	49,670
Ratio of injected CO_2	*15%*	*23%*	*21%*	*18%*	*20%*	*24%*	*22%*	*21%*	*20%*
Steam utilites	80	80	95	95	95	105	140	150	140
Wastewater discharge	1,940	2,000	2,310	2,130	2,030	1,900	2,180	2,340	2,535
Fuel use (TTW)	515	440	455	440	440	360	410	545	525
Land use change	595	240	280	375	375	270	300	510	290
HFCs and SF_6	10	2	2	2	1	50	15	25	<1
Fertilizer for land reclemation	2	<1	<1	<1	<1	<1	1	<1	<1
Total Scope 1	**57,340**	**45,145**	**51,965**	**53,865**	**52,640**	**49,105**	**51,145**	**52,280**	**53,160**
Scope 2									
Location based	0	0	0	0	345	365	400	420	0
Market based	0	0	0	0	0	0	0	55,055	82,645
Total Scope 2 (Location based)	**0**	**0**	**0**	**0**	**345**	**365**	**400**	**420**	**0**
Scope 3									
Purchased capital goods	9,090	11,570	12,120	14,570	9,080	13,280	14,040	11,750	9,390
Purchased goods	2,350	2,920	2,790	2,700	2,420	4,290	2,860	3,010	4,240
Purchased services	3.190	3.375	2.820	3.785	3.125	3.010	3.010	3.740	3.855
Transportation of goods	95	145	265	185	80	105	145	265	1,255
Fuel and energy related activities not incl. in scope 1	130	120	110	110	150	130	140	170	130
Transmission grid SF_6	415	400	545	360	590	485	345	270	245
Sewerage waste	315	405	365	325	445	310	400	240	250
Waste	110	125	110	120	120	100	105	40	5
Employee commuting	135	135	145	135	50	85	110	95	250
Employee business travel	230	245	265	350	65	20	250	445	340
Downstream Event related travel	0	0	0	0	0	0	0	270	230
Investments	360	405	405	405	405	405	405	405	415
Total Scope 3	**16,405**	**19,880**	**19,870**	**23,020**	**16,500**	**22,115**	**21,895**	**20,665**	**20,585**
Biogenic Carbon emissions	40	40	40	55	60	50	50	45	40
Biodiversity and carbon insetting projects	-6,990	-6,990	-7,000	-7,005	-7,015	-7,030	-7,055	-7,065	-7,075
Carbon offestting projects	0	0	-500	-1,250	-1,250	-1,250	-2,610	-3,000	-1,200
Total GHG emissions	**73,745**	**65,025**	**71,835**	**76,885**	**69,485**	**71,585**	**73,440**	**73,365**	**73,745**
Total GHG sequestration and offsetting	**-6,990**	**-6,990**	**-7,500**	**-8,255**	**8,265**	**8,280**	**9,665**	**10,065**	**8,275**
Net emissions	**66,755**	**58,035**	**64,335**	**68,630**	**61,220**	**63,305**	**63,775**	**63,300**	**65,470**

Scope 1 emissions and reduction initiatives

In 2024:

RE's geothermal power plants emitted **49,670 tonnes CO_2-eq**, which is a **8.4% decrease** from 2016.

Geothermal Powerplants and Carbfix CCS Method

Geothermal steam is utilized for power- and heat production. It consists partially of two greenhouse gasses (GHG), namely carbon dioxide (CO_2) and methane (CH_4). Typically, these GHGs are released from the geothermal steam and emitted into the atmosphere. However, Reykjavík Energy (RE) has developed the Carbfix method, a Carbon Capture and Storage (CCS) technology which permanently mineralizes CO_2. A cornerstone of RE's emission reduction strategy is the implementation of the Carbfix method at the geothermal facilities. Carbfix started out in 2006, and was formalized by four founding partners in 2007; Reykjavík Energy, the University of Iceland, CNRS in Toulouse, and the Earth Institute at Columbia University. Since 2007, several universities and research institutes have participated under the scope of EU funded sub-projects.

This decrease is mainly due to increased use of Carbfix CCS at the geothermal powerplants in 2024 compared to 2016 and less overall CO_2 concentration in the geothermal steam. The change in emissions from 2023 is a 2% increase due to variability in uptake of CO_2 from the geothermal reservoir.

Since 2016, the geothermal powerplants have accounted for 65-75% of RE's total GHG emissions. The implementation of Carbfix CCS on an industrial scale began at Hellisheiði geothermal power plant in 2014, capturing 15-24% of CO_2 emissions the past 10 years. RE plans to fully implement Carbfix CCS, capturing and injecting 80% of CO_2 emissions from the power plant, by 2025. Pilot injections started at the Nesjavellir powerplant in early 2023 and RE aims for full scale injection at the powerplant by 2030.

In the base year, 2016, the geothermal power plants' CCS rate was around 15%. In 2017, these rates increased and since then the injection rates are ranging from 18% to 24% of CO_2 emissions, with the highest rates recorded in 2021. This variability is mainly due to three factors:

Variability in the uptime of the CO_2 capture unit at Hellisheiði and Nesjavellir geothermal powerplant, due to temporary shutdowns related to either construction or unexpected failures.

Variability in energy production at geothermal powerplants.

Variability of CO_2 concentration in new boreholes connected to the Hellisheiði geothermal powerplant.

Steam Utilities

RE operates a few steam utilities, one in Hveragerði Town, a municipality east of Hellisheiði powerplant, and Híðarveita steam utility. These are district heating system which draw its energy from geothermal steam. This steam consists partially of GHG, including CO_2 and CH_4, which are emitted once the steam has been used for heating. The GHG emission have been roughly estimated as 140 CO_2-eq in 2024, up from 80 tonnes CO_2-eq in 2016. Note that this is a change from the emissions reported in the 2023 climate account where Hlíðarveita had been omitted form the estimation. It should also be noted that these emissions lack precise measurements. RE is currently working on developing more concise measurement methods for this emission category.

Nesjavellir powerplant

Wastewater discharge

RE manages the infrastructure and operation of wastewater systems that service most of Iceland's capital area, as well as in the Township of Akranes and the Municipality of Borgarbyggð in West Iceland. The wastewater infrastructure serves approximately 60% of the population in Iceland. From the treatment plants, the treated wastewater is discharged to the ocean.

This treated wastewater consists of organic nitrogen, methane, and carbon. RE accounts for N_2O and CH_4 emissions in scope 1 from the resulting decomposition, CO_2 is however not reported, as it comes from a biogenic origin. Methane forms where organic material from the wastewater discharge is buried into sediment where it decomposes in an anaerobic environment. This is the case at two locations in West Iceland, Hvanneyri and Reykholt, where the wastewater is discharged to lakes. At other locations where the wastewater is discharged to marine environments, or where there is active flow, the erosion rate of sediment is too great to assume that the discharged material is buried in sediment. In 2024, GHG emissions totalled 2,535 tonnes CO_2-eq, marking a 31% increase from 2016 and an 8% rise from 2023. This growth in emissions is attributed to the increased volume of wastewater received and processed by Veitur.

Fuel use (TTW)

RE purchases and uses fuel for its vehicle fleet and other machinery. Tank-To-Wheel (TTW) denotes the tailpipe emissions which occur when fuel is burned. RE also reports Well-To-Tank (WTT) emissions which are included in the scope 3 section below. TTW emissions in 2024 amounted to 525 tonnes CO_2-eq, which is a 2% increase from 2016. Although the total number of vehicles in RE's vehicle fleet has increased from 177 in 2016 to 191 in 2024, the relative amount of clean energy vehicles rose from 24% to 47%. RE is actively phasing out fossil fuel vehicles and machinery for more sustainable alternatives.

HFCs and SF_6

RE uses two GHGs in its operations that fall under either HFCs or SF_6.

Sulphur hexafluoride (SF_6), which has a GWP of 23,500, is used as insulation material in various electricity equipment in both the electric distribution system as well as in power plants. Additionally, SF_6 is used in tracers during tracer flow tests (TFT) to measure steam uptake from high temperature geothermal boreholes. SF_6 emissions occur mainly due to leakages in electricity equipment in Hellisheiði and Nesjavellir geothermal power plants. RE is actively replacing equipment which uses SF_6 such as switches, for more sustainable alternatives.

In RE's freshwater utility, Hydrofluorocarbons (HFCs) are utilized in air conditioning systems to maintain dry air conditions in pumping stations. RE previously used HFC-134a, a GHG with a GWP of 1,300, in its cooling equipment. However, since 2021, RE has purchased equipment that uses R454c, which is a mixture between HFC-32 and HFC-1234yf, and has a GWP of 148.

Emissions of HFCs and SF_6 in 2024 were under 1 tonnes CO_2-eq, where the only emissions in this category in 2024 were from the use of SF6 in trace flow tests. This is a decrease of about 10 tonnes CO_2-eq from 2016. RE's goal is to phase out HFC and SF_6 use.

Klettagarðar sewerage treatment plant

Fertilizer Usage

Fertilizer is used on RE's land in afforestation and land reclamation projects. The fertilizer consists partially of nitrogen which is converted to N_2O after application. Total emissions resulting from fertilizer application amounts to less than 1 tonne CO_2-eq in 2024. This presents a 60% decrease from 2016 due to less fertilizer usage in the reporting year. RE is evaluating potential solutions to minimize fertilizer emissions, such as buying fertilizer with less nitrogen content.

Elliðarár station, science communication center

Land use changes

RE actively works to rehabilitate all areas affected by its operations. The aim is to ensure that the rehabilitation with nature-based solutions offsets any emissions caused by the disturbance. When this is not possible RE accounts for land use change emissions on land owned or controlled by RE in Scope 1.

In 2024 the total emissions from land use change were 290 tonnes CO_2-eq, a 51% decrease form 2016.

Scope 2 emissions and reduction initiatives

Scope 2 emissions refer to indirect greenhouse gas (GHG) emissions associated with the Reykjavík Energy's (RE) purchase of electricity and heating.

Location Based Approach

Using the location-based approach, emissions from purchased electricity and heating are 0 tonnes CO_2-eq in 2024, the same as in 2016. This is due to RE only purchasing electricity from within the organizational boundary, where emissions from the production of this electricity has already been accounted for in scope 1. Similarly, emissions from heating are zero as RE generates all the geothermal water used for heating, with these emissions also included in scope 1. In years when the location based emissions have been non-zero electricity, such as Veitur's distribution losses have been purchased from 3rd party producers, outside the organizational boundary.

The location-based approach is applied in RE's total carbon footprint.

Market Based Approach

Under the market-based method, the emissions amount to 82,645 tonnes CO_2-eq in 2024. This is up from 55,055 tonnes CO_2-eq in 2023 an 0 tonnes CO_2-eq the previous years where the Guarantees of Origin (GO) were retained for RE's operations. In this approach, electricity accompanied by a GO is assigned an emission factor of zero. Conversely, purchased electricity without GOs is assigned an emission factor based on the residual mix, as published annually by the National Energy Agency (NEA, Orkustofnun). This aligns with the recommendations of the Association of Issuing Bodies (AIB), which developed and oversees the European Energy Certificate System (EECS). The increase in market-based emissions is due to both the rise in the residual mix emission factor and fewer GOs retained for RE's electricity consumption.

Market-based heating is the same as location-based heating as no GOs are sold in this market.

Scope 3 emissions and reduction initiatives

In 2024:

Total emissions from **purchased goods and services increased 20% compared to 2016,** but **decreased by 5% compared to 2023**.

Purchased Goods and Capital Goods:

Procured goods have a carbon footprint due to direct and indirect emissions by suppliers which produce those goods. Reykjavík Energy (RE) evaluates indirect emissions from procurement by using data based on Life Cycle Assessments (LCA) for products purchased by RE. In cases where such data does not exist, spend based emission factors published by the United Kingdom's Department for Environment, Food & Rural Affairs (DEFRA) are used. These factors de-

scribe emissions per currency spent on product categories such as "Basic iron and steel" etc. LCA data are used to evaluate the emissions from 11% of the total value of RE's procurement in 2024. Included are all the goods and capital goods paid for in the reporting year. In many cases delivery of the good is included in the contract, in which case the emissions of transportation are included in the purchased goods and capital goods category.

Total emissions related to procurement of capital goods amounted to 9,390 tonnes CO_2-eq in 2024, which presents a 3% increase from 2016. The product category contributing to most of the impacts from total procurement was "Basic iron and steel" with "50% of the impacts". RE is actively evaluating ways to procure more sustainable goods, focusing on sustainably produced steel, as steel pipes are a substantial part of RE's purchases. Emissions from procurement of goods other than capital goods were 4,240 tonnes CO_2-eq in 2024, an increase of 80% from 2016. RE is proactively communicating with its main suppliers to find ways to reduce and outline procurement related emissions.

Note that emissions from procurement have been updated since the 2023 climate account. This is due to a review of the procurement methodology where procurement categories were re-labelled, reducing the amount of procurement categories being estimated using a average emission factor, as well as some procurement categories were changed from being labelled as capital goods to other goods and vice versa. As this resulted in more than a 5% change from the 2023 reported emissions the emissions for these categories were updated.

Purchased services

RE focuses on services related to construction (mainly trench work) and drilling. Construction emissions are based on the length and volume of trenches, the emissions factor per meter of trench was sampled from a project in which a contractor supplied RE with information on emissions. Drilling emissions are based on estimations from drilling contractors.

Breakdown of emissions from purchased services in 2024

Emissions tCO_2-eq.	2024
Trench digging by contractors	2,200
Trench digging WTT	570
Drilling by Contractors	885
Drilling WTT	200
Total purchased services	**3,855**

Construction emissions were 3,855 tonnes CO_2-eq in 2024, an increase of 21% from 2016 due to increased expansion of utility systems in the Reykjavík Capital area. Emissions from drilling amounted to 1,085 tonnes CO_2-eq in 2024 which presents a considerable increase from 75 tonnes CO_2-eq in 2016. Although high-temperature geothermal drilling, now almost exclusively relies on electricity, the avoided emissions are not enough to outweigh the increase in the number of drilling projects, such as for Carbfix. RE is working with its suppliers to evaluate the potential of using electricity for smaller drilling projects as well, namely for cold and hot water drilling.

Suðuræð construction in August 2024

RE is proactively encouraging its contractors to shift towards energy transition. This initiative is part of RE's broader strategy to promote sustainable practices and reduce carbon footprint across its operations and supply chain.

Transportation of Goods

Goods are transported to and from Iceland by air through commercial airlines and cargo planes. Furthermore, Iceland relies on sea transportation via cargo ships. Goods are transported by land using trucks and other vehicles which is crucial for the last-mile delivery of goods to their final destinations, serving both RE's urban and rural service areas. Emissions from transportation of goods were 1,255 tonnes CO_2-eq in 2024, this includes TTW + WTT emissions. This is an increase of over 1,220% from 2016. This significant increase

is due to the transport of a drill that contributed significantly to emissions in this category. Excluding the transportation of this drill results in a 140% increase in emissions from the 2016 base year.

Please note that this category only includes transportation of goods directly paid by RE, transportation of goods in the supply chain is included in the category purchased goods and capital goods. Due to an error previous years emissions in this category have been updated.

Upstream fuel & energy related activities not included in scope 1&2

This emission category pertains to the indirect emissions resulting from fuel consumed in scope 1, electricity production, and transmission losses in Iceland's national grid operated by Landsnet, the national electricity grid operator.

Borehole in Kjalarnes

Specifically, it focuses on emissions from electricity purchased externally by RE. Emissions from transmission losses associated with electricity produced internally by RE are accounted for under Scope 1, while indirect emissions from electricity production are included in Scope 3.

In 2024, the total scope 3 emissions attributed to transmission losses amounted to 0 tonnes of CO_2-eq as no electricity was purchased from third parties during the year. This accounting helps in providing a more comprehensive understanding of RE's indirect emissions footprint, particularly those emissions that are not directly produced by its operations but are a consequence of the energy it procures from outside sources.

Breakdown of emissions from Upstream fuel & energy related activities not included in scope 1&2 I in 2024

Emissions tCO_2-eq.	2024
Upsteam emissions of purchased electricity	0
Transmission losses	0
Fuel use (WTT)	130
Total	**130**

Upstream emissions from fuel use, also known as WTT emissions, refer to emissions generated during the production and supply chain of the fuels purchased by RE. In 2024, WTT emissions totalled 130 tonnes of CO_2-eq, representing an 4% increase compared to 2016. These emissions are directly related to tailpipe (TTW) emissions reported under Scope 1 and will be reduced in line with RE's ongoing energy transition goals.

Well-to-tank (WTT) emissions from fuel use within Scope 3 are reported under the specific Scope 3 category where the fuel consumption occurs.

Transmission Grid

RE calculates its indirect emissions attributable to SF_6 leakages from the electricity equipment of Landsnet, the national electricity grid operator. SF_6 is a potent greenhouse gas used as an insulating material in electrical equipment. RE's approach to estimating these emissions involves assessing its proportion of electricity production relative to Iceland's total production. This method allows RE to determine its share of the environmental impact caused by Landsnet's SF_6 leakages.

Between 2016 and 2024, Landsnet reported SF_6 leakages varying from 85 to 142 tonnes of SF_6. In 2024, the SF_6 leakages from Landsnet that were incorporated into RE's climate account amounted to 10.4 tonnes of SF_6, which translates to 245 tonnes of CO_2-equivalents.

Sewerage waste

In RE's wastewater treatment operations, filtered sewage waste is systematically gathered and then transferred to designated waste collectors. In 2024, the indirect emissions resulting from the handling and processing of this sewage waste were calculated to be approximately 240 tonnes of CO_2-equivalent. Notably, this figure represents approximately 25% reduction in emissions compared to the levels recorded in 2016.

Breakdown of emissions from sewerage waste in 2024

Emissions tCO_2-eq.	2024
Screening waste	45
Fat and grease	125
Sludge from biological treatment	80
Sand	0
Total	**250**

RE's initiatives include working on innovative projects to prepare for the reuse of sewage waste such as sand, sludge and fat which is of value in the circular economy.

Waste

In 2024, the emissions resulting from waste generated in RE's operations totalled 4.5 tonnes of CO_2-eq, marking a decrease of about 95% compared to 2016. This decline in waste emissions is primarily attributed to changes in waste treatment practices in Iceland. The most significant change contributing to this reduction is the shift from landfilling to combustion for disposing of general waste and painted timber. This transition has a considerable impact on emissions due to the differing emission factors associated with these disposal methods.

Breakdown of emissions from waste in 2024

Emissions tCO_2-eq.	2024
Landfill	2
Compost	2
Combustion	<1
Reused/Recycled	<1
Hazardous	0
Total	**4.5**

The emission factors used for calculating waste emissions are sourced from the United Kingdom's Department for Environment, Food & Rural Affairs (DEFRA). According to these factors, emissions from combustion are substantially lower than from landfilling. This difference arises because the decomposition process in combustion is utilized for energy generation, and a portion of the emissions is allocated to the energy produced.

Considering these changes in waste treatment and disposal practices, the emission factors applied to each waste category have been updated for 2024. This update ensures that the emission calculations more accurately reflect the actual pathways and impacts of RE's waste management, thereby providing a more precise measure of the organization's environmental footprint in terms of waste-related emissions. Waste emissions from previous years have also been updated as an update in waste emission factors from DEFRA due to an error in the previous emission factors resulted in a change in emissions over 5%. Note that the waste handling for previous years was not updated.

Employee Commuting

RE accounts for emissions associated with employees' commuting to and from work. Every year RE conducts a survey among its employees to gather information about their commuting habits. This survey inquiries about the modes of transportation used by the employees, frequency, and the distance between their homes and the workplace.

Breakdown of emissions from employee commuting in 2024

Emissions tCO_2-eq.	2024
Employee commute TTW	205
Employee commute WTT	45
Total	**250**

In 2024, the emissions resulting from employees' commutes to work amounted to 250 tonnes of CO_2-equivalent. There of 205 tonnes of CO_2-equivalent TTW emission. This represents approximately 85% increase compared to 2016. This significant increase can be attributed partially to an increase in the average distance travelled to work and the amount of full time workers over the year. Note that emissions from previous years in this category have been updated to include WTT.

RE offers a comprehensive travel plan package to its employees To encourage eco-friendly commuting. This package includes initiatives such as a green travel grant, which is a monetary incentive granted to employees that opt for climate friendly modes of transport. RE also provides free charging for electric vehicles at

the workplace and access to electric bicycles. Additionally, following the experience during covid pandemic, RE supports flexible working arrangements, with the option to work from home, which can notably reduce the need for daily commuting.

Employee Business Travel

RE employees regularly travel to attend conferences or business meetings. In 2024 emissions from work related flights were 295 tonne CO_2-eq, there of 10 tonne CO_2-eq. WTT emissions. This is a 90% increase from 2016. Likewise, emissions from hotel stays that accompany travel have increased by 120% since 2016, totalling 55 tonne CO_2-eq in 2024. Low emissions, especially in 2020 and 2021 are explained by limited travel due to the covid pandemic.

Breakdown of emissions from business travel in 2024

Emissions tCO_2-eq.	2024
Air travel	285
Air travel WTT	10
Hotel Stays	45
Total	**340**

Downstream event related travel

RE accounts for all air travel and hotel stays by foreign guests for conferences hosted by RE. In 2024, for the first time, Carbfix hosted a Mineralization Summit, inviting participants from all over the world. Total emissions from participants traveling to the Mineralization Summit was 230 tonnes CO_2-eq, including 10 tonnes CO_2-eq from WTT fuel emissions. Note emissions from 2023 were also updated to include WTT emissions.

The summit was held both on-site in Reykjavík and via streaming. This hybrid approach not only promoted message but also had a positive impact on the environment. RE will continue to provide the chance for remote participation in its events.

Breakdown of emissions from event travel in 2024

Emissions tCO_2-eq.	2024
Event travel TTW	220
Event travel WTT	10
Total	**230**

Investments

Emissions from investments are calculated based on the shareholding percentage of Reykjavik Energy (RE) in associated companies. The emissions are attributed proportionally to RE's ownership stake. In 2024, emissions from investments amounted to 415 tonnes CO_2-eq,no change from 2023 and an 12% increase from 2016.

Most investment-related emissions come from Landsnet, which operates the Icelandic transmission network, accounting for 410 tonnes CO_2-eq in 2024. This represents a 3.3% increase from 2023 and a 16.8% increase from 2016.

Other investments contribute minimally to emissions, primarily due to office-based activities. Companies such as Netorka hf., Íslensk Nýorka, and DMM Lausnir ehf. each generated 1–3 tonnes CO_2-eq in 2024, similar to previous years. Keilir, an educational institution, accounted for less than 1 tonnes CO_2-eq, unchanged since 2016.

No emissions were attributed to Orkuskólinn REYST, Aflvaki hf. as it reported no relevant activities. Additionally, RE sold its remaining shares in Galanterm Ltd. in early 2024, making it irrelevant for future reporting.

The emissions from investments are calculated using general emission factors (EMF) for office-based activities and specific inventories where available. Landsnet's GHG inventory is the primary source for transmission-related emissions, while other companies rely on publicly available emission factors for office work and educational institutions.

Biogenic carbon emissions

Reykjavík Energy (RE) reports its biogenic CO_2 emissions separately, adhering to the guidelines of the ISO 14064-1 standard. These emissions originate from the biofuel blend included in the fossil fuels RE purchases, as well as from methane fuel. In 2024, RE's total biogenic CO_2 emissions amounted to 40 tonnes of CO_2-equivalent.

Wastewater discharge releases biogenic CO_2 emissions, these have not been quantified and are not included in RE's total biogenic CO_2 emissions.

GHG breakdown in scope 1

The greenhouse gases (GHGs) that are released directly into the atmosphere because of Reykjavík Energy's (RE) operations are carbon dioxide (CO_2), methane (CH_4), sulphur hexafluoride (SF_6), nitrous oxide (N_2O), tetrafluoroethene (HFC-134a) and R454c, a mixture between HFC-32 and HFC-1234yf.

Carbon dioxide (CO_2) isis released from the operation of geothermal powerplants and due to research and maintenance drilling in the high-temperature geothermal fields. Furthermore, CO_2 is in the steam utility and due to the operation of fixed and mobile back-up power stations in the supply and distribution system. CO_2 is also released due to the burning of fuel in RE's s car fleet and in projects where land that is owned or operated by RE is converted e.g. to borehole sites and as a result there is a decrease in the lands carbon stock.

Methane (CH_4) is released from the operation of geothermal powerplants and due to research and maintenance drilling in the high-temperature geothermal fields. Furthermore, CH_4 is released due to the decomposition of organic substances in wastewater discharge in lakes, landfilling of waste and the burning of fossil fuels in RE's car fleet.

Nitrous oxide (N_2O) is released due to the decomposition of organic substances as wastewater is discharged in the ocean, due to the burning of fossil fuels in RE's car fleet and as fertilizers are used in land reclamation and afforestation projects.

Hydrofluorocarbons (HFCs)such as tetrafluoroethene (HFC-134a) and R454c are used in the water utility system for cooling air and to prevent moisture forming on pipes, e.g. in airtight pumping stations.

Sulfur hexafluoride (SF_6) is used in electrical equipment in geothermal power plants, in supply and distribution systems, and it can be released when it leaks from the equipment. SF_6 can also be released during tracer flow tests (TFT) in high temperature boreholes.

Breakdown of scope 1 emissions by GHG

2024 Scope 1, tonnes GHG								
Source:	**Geothermal Powerplants**	**Steam Utility**	**Wastewater discharege**	**Fuel use (TTW)**	**Land use changes**	**HFCs & SF_6**	**Fertilizer for land reclemation**	**Total**
CO_2	46,133	58.18	0	519.1	287.7	0	0	**46,998**
CH_4	126	0.05	0.16	0.008	0	0	0	**126.217**
N_2O	0	0	9.56	0.24	0	0	0.003	**9.803**
SF_6	0	0	0	0	0	0.007	0	**0.007**
HFC-134a	0	0	0	0	0	0	0	**0**
R454c	0	0	0	0	0	0	0	**0**

Emissions intensity of energy

Reykjavík Energy's (RE) emissions intensity of its energy production, electricity, and heating, refers to the amount of GHG emitted per unit of energy generated. It is one of the measures that quantifies the environmental impact of producing energy. RE expresses its emissions intensity for electricity in grams of CO_2 equivalent per kilowatt-hour (gCO_2-eq/kWh) and for heating in grams of CO_2 equivalent per cubic meter (gCO_2-eq /m3). The emission factors (hot water and electricity) for power plants are calculated as total power plant emissions, divided by total energy (heat and electricity). The hot water emission factor is further calculated by applying the fraction of hot water in relation to total hot water production.

In 2024, the emissions intensity for electricity is 7.3 gCO_2-eq/kWh which represents a 10% decrease compared to 2016. The emissions intensity for heating is 217.3 gCO_2-eq /m3 which represents a 11% decrease compared to 2016. This is due to increased hot water production from power plants in relation to total hot water production.

Energy production

Reykjavík Energy (RE) produces renewable energy, electricity, and heating, from sources such as geothermal energy and hydropower. RE utilises about 12% of produced electricity and a 1% of its heating for its own operations.

Emissions intensity of enery production at Reykjavik Energy

Emissions intentisy	Unit	User Scope	2016	2017	2018	2019	2020	2021	2022	2023	2024
Electricity (gross energy production)	gCO_2-eq./kWh	Scope 2	9.9	6.9	8.4	8.9	7.9	7.3	7.5	7.3	7.3
Electricity (net energy production)	gCO_2-eq./kWh	Scope 2	10.3	7.9	9.0	9.2	8.3	7.7	7.9	7.7	7.5
Hot water	gCO_2-eq./m^3	Scope 2	245.0	190.5	207.9	214.7	213.0	216.2	231.3	205.2	217.3
Electricity-distribution	gCO_2-eq./kWh	Scope 3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Hot water-distribution	gCO_2-eq./m^3	Scope 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electiricity-upstream	gCO_2-eq./kWh	Scope 3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Hot water upstream	gCO_2-eq./m^3	Scope 3	44.7	49.4	44.5	43.3	48.6	53.5	55.5	50.3	50.5

Reykjavík Energy production from 2016-2024

Energy production	Unit	2016	2017	2018	2019	2020	2021	2022	2023	2024
Electricity	GWh	3,400	3,500	3,500	3,500	3,600	3,550	3,450	3,500	3,150
Hot water*	GWh	5,000	5,000	5,700	5,400	5,300	5,400	5,400	6,400	6,900
High temperature fields	-	2,200	2,100	2,600	2,300	2,200	2,700	2,800	3,100	3,500
Low temperature fields	-	2,800	2,900	3,100	3,100	3,100	2,700	2,600	3,300	3,400

Greenhouse gas sequestration and offsetting

In 2024:

A total of **8 ha of new land was added to RE's biodiversity projects** and land-based carbon insetting projects

Biodiversity and land-based carbon insetting projects

Reykjavík Energy (RE) has undertaken land reclamation and afforestation on the company's own land for more than 70 years, or since 1950. These nature-based projects aim to restore soil and vegetation cover, improve soil, rejuvenate natural birch forests, and enhance biodiversity. In the past decade, an additional goal has been to sequester greenhouse gases (GHG) in vegetation and soil, and thereby aligning RE's land management strategies with climate change insetting efforts.

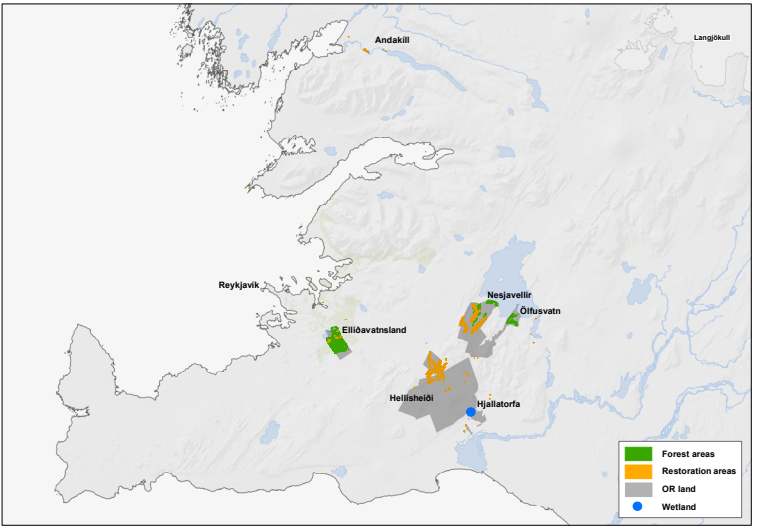
The synergy between these objectives is beneficial. Land restoration in Iceland is a work of patience due to weather conditions and lack of essential nutrients in the soil, which are limiting factors for vegetation and soil biota growth.

Rewetting of peatland on RE's land took place in the fall of 2016 with the aim of reducing carbon emissions from the land and restoring wetland ecosystems.

See the figures for RE biodiversity projects and project boundaries for an overveiw of the ares where RE has worked actevly torwards land reclemation, afforestaion and rewetting of peatland, see figures below and on page 22.

Strengthening of biodiversity in vegetation and soil on RE's own land is and will continue to be a part of the goals of nature-based solutions at RE.

RE biodiversity projects



GHG sequestration in 2024

Emissions tCO_2-eq.	2024
Afforestation	5,740
Land Reclamation	1,260
Rewetting of peatland	40
Total	**7,040**

See the GHG emission overeiw on page 11 for total GHG sequestration in previous years.

Afforestation Projects

RE's afforestation projects are all practiced within the companies own land, that is Ölfusvatn and Nesjavellir (starting in the year 1990) in Grímsnes- and Grafningshreppur municipality and at Elliðavatn in Reykjavík (starting in the year 1950).

In the beginning, the reclamation areas where unvegetated or sparsely vegetated areas with less than 20% vegetation cover and are mostly binding areas, carbon sinks.

Afforestation takes place on land that is fenced off so that grazing livestock are kept out of the area. These fenced areas demarcate potential planting areas and are roughly 965 ha. There are more areas on RE's land that could be fenced off and afforested in the future. Expanding afforestation sites by 4 hectares annually remains a key goal. Iceland's large areas of sparsely vegetated ecosystems have a relatively high potential to act as carbon sinks. The soil sequestration is added to the aboveground sequestration.

Sequestration in 2024 amounts to 5,740 tonnes CO_2-eq and is the same compared to base year 2016. The explanation for this is that within 10-year intervals an assessment is done on the sequestration and is thus the same for one decade.

Land Reclamation Projects

Land reclamation projects are mostly carried out on land owned by RE at Hellisheiði (Kolviðarhóll) and Hjallatorfa in Ölfus Municipality, at Nesjavellir in Grímsnes and Graf-

ningshreppur Municipality and in Andakíll in Borgarbyggð and Skorradalshreppur municipalities. These areas account for about 87% of all RE's land reclamation sites. Around 8% of the land reclamation areas is carried out on land owned by the state in Hellisheiði, where RE has a license for operations, as well as on private land leased from ÍR by RE or 5%. In total RE has reclaimed around 600 ha.

Initially, all land reclamation areas where unvegetated or sparsely vegetated, with less than 20% vegetation cover and are mostly binding areas, carbon sinks. The oldest reclamation area is in Heiðmörk, starting in 1950, but other areas in 1990 to 2022.

The restoration method (grass seeding, fertilization, moss spreading etc.) suitable for each area is assessed and documented in RE's GIS database in Arc map and revised every year. Expanding land reclamation sites by 4 hectares annually remains a key goal. The soil sequestration is added to the vegetation sequestration.

Sequestration in 2024 amount to 1,260 tonnes CO_2-eq and has increased by about 4% compared to the base year 2016.

Rewetting of Peatland Projects

In the fall 2016 rewetting of peatland took place on 3.2 ha of land, Ytri Þurá, owned by RE, in Ölfus Municipality. Prior to the wetland excavation the land was peat, and the vegetation included peat moss.

To rise the water level in the wetland to as natural level as possible, trenches were filled. The results of the rewetting seem to be in accordance with other similar studies, both in Iceland and in other countries within the coniferous forest belt. During a visual inspection in the fall of 2023, it was evident the recovery had been successful.

Avoided emissions from the rewetted land is 40 tonnes CO_2-eq and is estimated the same since 2017, a year after the rewetting took place in the fall 2016. Continuous monitoring and evaluation of these rewetted lands are essential for guiding future decisions strategies in peatland management.

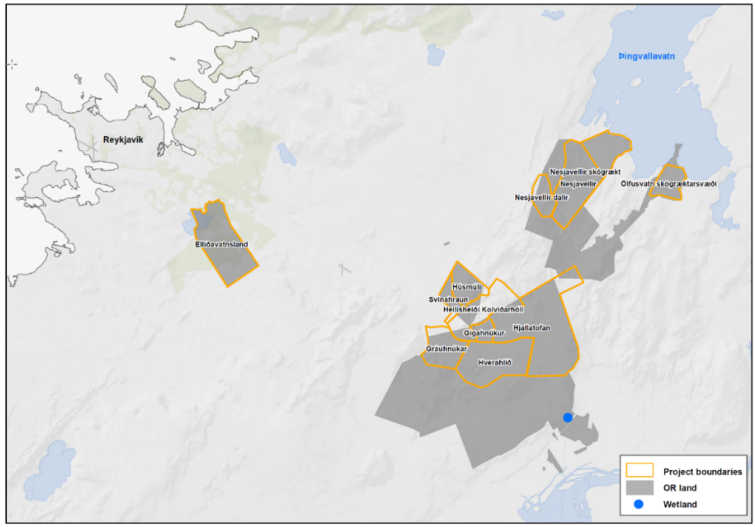
Carbon offsetting projects

RE has actively engaged in carbon offsetting projects since 2018. These projects focus on both reducing GHG emissions and fostering sustainable development and socio-economic benefits.

RIPPLE Africa's Improved Cookstove Project in Malawi

RE has supported this United Nations Carbon Offset Platform project since 2020. In 2024 RE offset 1,200 tonnes CO_2-eq which has increased by approximately 85% compared to 2020. By supporting the Malawi project, it not only reduces GHG emissions but also combats deforestation and respiratory diseases, especially among women and children. RE's aim is to continue the support for this program.

RE biodiversity project boundaries



Votlendissjóður

From 2018 to 2021, RE supported this initiative, focusing on reducing GHG emissions through wetland restoration in Iceland. This collaboration with various stakeholders helped offset between 500 to 1,250 tonnes CO_2-eq of RE's carbon emissions these years.

Methodology

Information used in the climate account is received directly from different business units within Reykjavik Energy (RE) as well as directly from suppliers. Each unit is responsible for their own data. All activity data is reviewed by RE's Environmental team before being applied in the climate account.

Sections below outline information management procedures, significance criteria, excluded emissions sources, included greenhouse gases, changes in the methodology for the climate account from previous years, emissions factors applied in the calculations as well as a separate methodology section for biodiversity and land-based carbon insetting projects.

RE information management for GHG inventory data

Information management

Reykjavík Energy (RE) has developed a Greenhouse Gas (GHG) information management procedure to ensure the accurate, consistent, and reliable development of its GHG inventory. This process supports effective data verification and continuous improvement.

The procedure integrates five key steps: data input, processing, storage, control, and output. GHG data is collected annually from RE business units or suppliers, after which emissions are calculated through standardized processing methods. Internal control checks, such as internal audits, are conducted during processing as a part of the control procedure to identify inconsistencies, ensure completeness, and eliminate errors. If issues or opportunities for improvement in the data or calculation methods are identified, corrections are made, and the process is repeated until the data passes validation. All GHG-related data, processing activities, and supporting documentation are securely stored and archived, ensuring traceability and compliance.

Additionally, periodic external verifications of the GHG inventory, climate targets, and sustainability report help ensure that no GHG sources or sinks are overlooked, while supporting continuous improvements in data quality and methodology.

Significance criteria

All scope 1 and scope 2 emissions are considered significant. To evaluate significant emissions in scope 3 significance categories with significance criteria are used. Emissions sources only needs to fulfil one of these to be considered significant. These criteria are defined in the RE signifigance criteria table on page 24.

Exclusions

RE's climate account includes all scope 1 and 2 emissions, as well as scope 3 emissions that fall within the significance criteria. Scope 1 activities that have negligible emissions, and as a result are not included in the climate account, are listed below. Identified scope 3 activities that are excluded are also listed and explained.

Andakílsárvirkjun hydroelectric power plant (scope 1)

The 8 MWe power plant was commissioned in 1947. Since 2001, the power plant has been owned by RE. Power is generated from water in Andakílsá river, running from the power plant's Andakílsárlón intake reservoir, with the water source being from Lake Skorradalsvatn. The release of GHGs from the intake reservoir and the lake after 80 years of operation is considered insignificant and therefore excluded from RE's climate account.

Low temperature geothermal fields (scope 1)

Veitur Utilities operates low temperature geothermal fields for hot water in the Capital region. Direct emissions from these fields are negligible and therefore not included. Emissions from procurement and fuel use associated with the operation of low temperature fields are included.

Hydrogen usage (scope 1)

Emissions due to hydrogen usage of the vehicle fleet are not included as the hydrogen used is produced at RE's Hellisheiði geothermal power plant and therefore already included in scope 1. No GHGs are released from the use phase of hydrogen.

Server hosting (scope 3)

Ljósleiðarinn is responsible for constructing and managing the fibre-optic cables for homes and businesses, which are used by telecommunications companies. The company does not sell internet subscriptions to consumers. Therefore, emissions from server hosting are excluded.

Wholesale electricity trading (scope 3)

RE buys and sells electricity from 3rd parties. Emissions from the production of this electricity can be included in scope 3, and in the GHG protocol is described as purchased electricity sold to end users. This emission category falls outside the significance criteria regarding magnitude and data availability and is considered none, due to confidentiality issues. These emissions are therefore excluded.

Other emissions (scope 3)

Other scope 3 activities and emissions sources have been identified but are excluded as they fall outside of the significance criteria. This is the use of taxis, electricity uses during remote work and purchases made outside of the procurement system. Emissions from taxis as well as homeworking do not fulfil any of the significance criteria including the criteria of magnitude, sector specific guidance and availability of activity data. Emissions from purchases made outside of the procurement system are estimated at under 5% of the total value of procurement. RE is actively working towards gaining a better understanding and overview of these emissions. No emissions occur during the use phase of products sold by RE such as electricity, heating, or other. Therefore, there is no emissions source category for use of sold products.

Wastewater discharge (Biogenic carbon emissions)

Biogenic CO_2 emissions are not included in RE's biogenic carbon emissions category. Biogenic CO_2 emissions have not been quantified in the IPCC standard used to estimate wastewater GHG emissions.

RE climate account signifigance criteria

	Significance category	Significance criteria
1	Magnitude	**Significant if** emissions are more than 5% of RE's total emissions
2	Outsourcing	**Significant if** emissions are less than 5% of RE's total emissions but emissions are due to activities that RE outsources. This applies to borehole drilling which are a key activity in the operations of utility systems, geothermal power plants, and carbon sequestration. This also applies to trench digging which is an important part of RE's operations.
3	Employee commuting	**Significant if** emissions are less than 5% of RE's total emissions but emission is due to employee commute to and from work as well as business-related air travel.
4	RE sector specific guidance	**Significant if** emissions are less than 5% of RE's total emissions but sector-specific guidance for RE emphasises specific emission categories, for example from the GHG Protocol or SBTi
5	Availability of data	**Significant if** emissions are less than 5% of RE's total emissions but activity data is readily available.

Included greenhouse gases

The table below, for included greenhosue gases (GHG) and sources displays the GHGs released directly in RE's operations, with the main ones being carbon dioxide (CO_2), methane (CH_4), sulphur hexafluoride (SF_6), hydrofluorocarbon (HFC-134a), and nitrous oxide (N_2O). There are other GHGs that may be released indirectly in RE's value chain.

In RE's climate account AR5 and GWP 100 is used for converting GHG's into CO_2-eq, following guidelines from the UNFCCC . This is also consistent with the Environmental Agency of Iceland (EAI) as well as the UK Department for Energy Security and Net Zero (DEFRA) that use AR5 for their emissions factors.

Changes in methodology and corrections

Since the publication of the 2023 Reykjavík Energy climate account, key updates have been made to the GHG inventory. These updates are primarily the result of the SBTi Net-Zero validation, during which previously overlooked emission sources were identified. Additionally, improvements were made to the activity data and emission factors across existing categories, alongside a comprehensive review of organizational boundaries and methodologies. The key changes for each GHG scope are outlined below:

Scope 1

GHG emissions from land use changes on land owned and operated by Reykjavík Energy have been added as a new category in Scope 1. Previously, these emissions were assumed to be zero, as disturbed vegetation during construction was typically repurposed to restore other disrupted land areas. However, cases where this restoration was not feasible have been identified, and the corresponding emissions have now been included.

Emissions from one borehole serving the low-temperature district heating system, previously overlooked, have been quantified and included under the category "Boreholes outside power plants."

Scope 2

The methodology for estimating Scope 2 emissions has been updated for greater transparency. Previously, the difference between the grid factor and Reykjavík Energy's emission factor was used. Now, all electricity produced and consumed within the organizational boundary is accounted for under Scope 1, simplifying the reporting process.

Included greenhouse gases and sources

Greenhouse gas	GWP(100) AR5	Explanation
Carbon dioxide (CO_2)	1	CO_2 is released from the operations of RE's geothermal powerplants as well as due to research and maintenance drilling in the power plant fields. Furthermore, CO_2 is released in the operations of RE's low-temperature fields and due to the operation of fixed and mobile power stations in RE's utility systems. CO_2 is released from the combustion of fuels in the RE's car fleet and rental cars as well as other places in the supply chain.
Methane (CH_4)	28	CH_4 is released from the operations of geothermal powerplants and due to research and maintenance drilling in the powerplant fields. Furthermore, CH_4 is released due to the decomposition of sewage sludge in lakes, landfilling of waist and fuel combustion.
Nitrous oxide (N_2O)	265	N_2O is released due to the use of fertilizers, decomposition of wastewater discharge and fuel combustion.
Hydrofluorocarbons (HFCs) HFC-134a	1,300	HFCs can be released in RE's freshwater utility where it is used in air conditioning equipment in pumping stations. This gas is being phased out by R454c.
R454c	146	R454c can be released in RE's freshwater utility where it is used in air conditioning equipment in pumping stations.
Sulfur hexafluoride (SF_6)	23,500	SF_6 is used in transformers at the geothermal powerplants, it can also be released during tracer flow tests (TFT) and in RE's electricity utility where it is used as an insulator for transformers.

Scope 3

Although beyond the minimum reporting boundaries, WTT emissions for fuel use have been added to Scope 3, aligning with SBTi Net-Zero requirements. Activity data for trench digging has been updated to avoid double counting in projects where multiple utilities are laid in the same trench. The methodology for estimating emissions from purchased goods and capital goods has been refined. Product categories were reviewed and assigned emission factors that better reflect the specific characteristics of the products. Waste emission factors were also updated and corrected back to the base year 2016.

A mistake in the 2016-2023 inventory for transportation of goods was corrected where a large share of transportation emissions had been omitted.

Emission estimates for categories capital goods, purchased goods, purchased services, transportation of goods, waste, employee commuting, employee business travel, and downstream event-related travel have been corrected and updated retroactively to 2016.

One emissions category was added to scope 3, this is the investments category.

Emissions factors

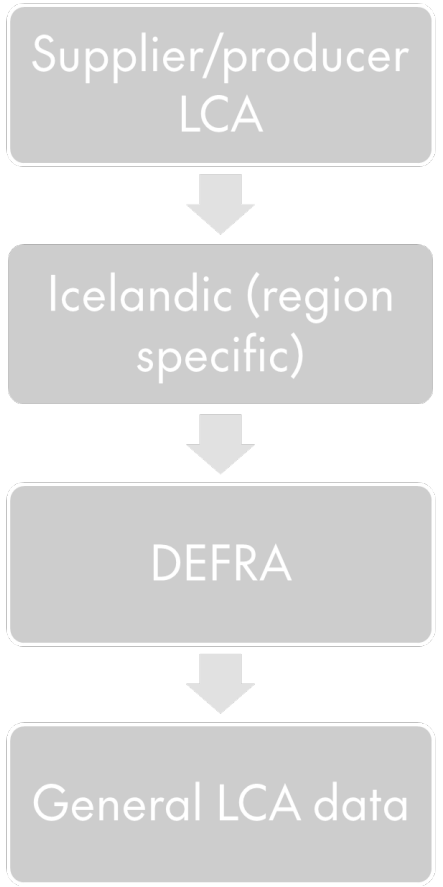
Emissions factors (EMF) are selected to give the best and most accurate reflection of the greenhouse gas (GHG) emissions from Reykjavík Energy (RE). The picture on page 26 shows the hierarchy of selecting emission factors. Emission factors or similar information, such as Life cycle assessments (LCAs), that is measured within RE's operations or is received directly from suppliers, have priority. This applies to direct emissions from RE's geothermal power plants, which are measured and published by RE staff. It also applies to, for example, specific 3rd party verified Life Cycle Assessment (LCA) provided by suppliers, such as Environmental Product Declarations (EPDs). EPDs and LCAs provided by suppliers are critically reviewed internally before being applied to RE's climate account. This is done to assess the quality of the LCA, looking at the scope, the database used and other background data.

When specific LCA data from suppliers are not available, then EMFs applicable specifically to Iceland, or EMFs provided or recommended by the Environmental Agency of Iceland (EAI) are used. These are EMFs directly provided by the EAI or EMFs from the EAI apply for example to employee commute to and from work.

Emission factors designed specifically for Iceland are not always available, specific enough or sufficiently disaggregated by GHG. In such cases emission factors from the UK Department for Environment, Food and Rural Affairs (DEFRA) are used. Emission factors from DEFRA are chosen due to their availability, allowing emission factors from many emission source streams to be derived using the same methodology. DEFRA's EMFs are also commonly used in GHG reporting in Iceland. DEFRA factors are used in RE's climate account for example for waste streams, where the Icelandic emission factors are limited in the number of waste categories. They are also applied to fuel use where the Icelandic emission factors from the EAI are not disaggregated by GHG, nor do they contain WTT emissions or biofuel blend.

Should it not be possible to use any of the above EMFs from DEFRA or the EAI, then RE uses information from LCAs for example from the Ecoinvent database. Emission factors for scope 1, 2, 3 and biogenic emissions are given in the tables on pages 27-32.

Hirarchy for selection of emission factors



Scope 1 emission factors

Emission factor (EMF[1]), kg GHG										
Emission source	**Activity data unit**	**CO_2**	**CH_4**	**N_2O**	**HFC**	**R454c**	**SF_6**	**CO_2-eq.**	**Uncertainty**	**Data source**
Geothermal power plants		X	X					N/A	12.5%	Direct measurment at emission source
District heating		X	X					N/A	100%	Direct measurment at emission source
Wastewater discharge - BOD[2]	kg BOD		0.114					3.2	160%	EMF: IPCC table 6.8
Wastewater discharge - N[3]	kg N			0.008				2.08	64%	EMF: IPCC table 6.8A
Fuel use TTW[4] Petrol	Litres	2.08	0.00029	0.00002				2.1	10%	EMF: DEFRA
Fuel use TTW[4] Diesel	Litres	2.48	0.00001	0.00012				2.51	10%	EMF: DEFRA
Fuel use TTW[4] Methane (CH_4 and N_2O)	Nm^3							0.002	10%	EMF: EAI
Land use change[5] - Biomass[6]	ha	0.0326						0.0326	150%	EMF: EAI National inventory Report table 6.34
Land use change[5] - Mineral soil [7]	ha	0.00245						0.00245	150%	EMF: EAI National inventory Report table 6.34
SF_6	kg SF_6						1	23,500	10%	EMF: IPCC table 8.A.1
HFC-134$_a$	kg HFC-134$_a$				1			1,300	10%	EMF: IPCC table 8.A.1
R454c	kg R454c					1		146	10%	EMF: Gas supplier
Fertilizer for land reclemation and afforestation	kg N			0.016				4.16	10%	EMF: EAI

[1]The EMF can be variable between years. The table shows EMFs for 2024, EMFs for previous years may differ. The most recent EMF from the "Data source" column is used (note AR5 is used although AR6 is available).

[2] Only applies to Hvanneyri and Reykhotl where wastewater is discharged to lakes. For wastewater discharged to marine environments CH4 does not form due to high oxygen saturation, high ocean currents, and little to no sediment formation from discharge: G.A.Auðunsson. Uncertainty of CH4 emissions from wastewater discharge is based on uncertainty ranges provided in table 6.7 of Volume 5, chapter 6, 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. This is in line with the EAI National inventory Report. Measurment uncertainty and uncertainty of the activity data estimted as 15% and 12% respectively.

[3]Uncertainty of N_2O emissions from wastewater discharge is based on uncertainty ranges provided in table 6.13 of Volume 5, chapter 6, 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. This is in line with the EAI National inventory Report. Measurment uncertainty and uncertainty of the activity data estimted as 20% and 5% respectively.

[4]Tank-to-wheels (TTW), Average biofuel blend emission factor used for petrol and diesel.

[5]Under the IPCC tier 1 methodology emissions from deadwood, litter and harvested wood products are assumed 0 when the land use change emissions do not occur on forest land. See page 8, Volume 4, chapter 2, 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

[6] Emission factor is for yealry carbon stock losses. 70% of original vegitation cover is assumed to be removed, See page 281 in EAI National inventory Report . A 1 year conversion period is applied for biomass losses, see tier 1 method for biomass in Volume 4, chapter 8, 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Uncertainty from page 282 in EAI National inventory Report.

[7]Emission factor is for yealry carbon stock losses. Weighted C-stock of treeless land is 66.9 t ha-1. A Soil stock change factor of 0.8 and a 20 year convesrion period are applied, in line with the tier 1 method in the Volume 4, chapter 8 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Annual loss in the carbon stock is then 0.67 t C ha^{-1}. Mineral soil is assumed to have a default depth of 30 cm. See page 281 in National inventory Report. Uncertainty from page 282 in EAI National inventory Report.

Scope 2 emission factors

Emission factor (EMF[1]), kg GHG										
Emission source	**Activity data unit**	**CO_2**	**CH_4**	**N_2O**	**HFC**	**R454c**	**SF_6**	**CO_2-eq.**	**Uncertainty**	**Data source**
Electricity - Location based Reykjavik Energy[2]	kWh								1%	EMF from Reykjavik Energy
Electricity - Location based Iceland[3]	kWh							0.00854	1%	EMF: EAI
Heating - Location based Reykjavik Energy[4]	m^3								1%	EMF from Reykjavik Energy
Electricity - Market based (residual mix)[5]	kWh							0.58181	1%	EMF: Orkustofnun
Heating - Market based Reykjavik Energy[6]	m^3								1%	EMF from Reykjavik Energy

[1] The EMF can be variable between years. Table shows EMF for 2024, EMF for previous years may differ. The most recent EMF, from the "Data source" column is used.

[2] This emission factor is used for electricity purchased from ON Power and is produced within the organizational boudary. These emissions are, however, not reported in scope 2 as they have aldready been accounted for in scope 1.

[3] This emission factor is used for electicity pruchased from parites outside the organizational boundary. The most recent grid factor from the EAI is used, the grid factor reported here is for the year 2022, however, it is also applied to reporting years 2022-2024 as a more recent grid factor is not avaialble.

[4] This emission factor is used for hot water purchased from Veitur Utilites and is produced within the orgalizational boundary. These emissions are, however, not reported in scope 2 as they have aldready been accounted for in scope 1.

[5] Orkustofnun publishes data with one year lag, EMF for reporting year 2024 is physically relevant to 2023 and so on.

[6] Same as for location based as no guarantees of origin are sold for the heating market in Iceland.

Scope 3 emission factors

Emission factor (EMF[1]), kg GHG										
Emission source	**Activity data unit**	**CO_2**	**CH_4**	**N_2O**	**HFC**	**R454c**	**SF_6**	**CO_2-eq.**	**Uncertainty**	**Data source**
Purchased capital goods[2]	ISK/Piece/m/kg							Variable	60%	EMF: DEFRA Carbon saver
Purchased goods[2]	ISK/Piece/m/kg							Variable	60%	EMF: DEFRA Carbon saver
Trench digging by contractors - diesel (TTW)[3]	m^3							14.88	50%	EMF: DEFRA and LOKI
Trench digging by contractors - HVO (TTW)[4]	m^3							0,21	50%	EMF: DEFRA and LOKI
Drilling by contractors - diesel (TTW)	Litres	2.48	0.00001	0.00012				2.51	20%	EMF: DEFRA
Transportation of goods (WTT + TTW)[5]	ISK							0.0088	70%	EMF: DEFRA Carbon saver
Upstream emissions of purchased electricity[6]	kWh							0.00065	1%	EMF: Supplier LCAs
Transmission losses[7]	kWh							0.00854	1%	EMF: EAI
Fuel use WTT Petrol[8]	Litres							0.58	10%	EMF: DEFRA
Fuel use WTT Diesel[8]	Litres							0.61	10%	EMF: DEFRA
Fuel use WTT Methane (CH_4 and N_2O)[8]	Nm^3							0	10%	EMF: EAI
Fuel use WTT HVO[8]	Litres							0,55	10%	EMF: DEFRA
Transmission grid SF_6	kg							23,500	5%	EMF: IPCC table 8.A.1
Sewerage waste - Screening waste (Combustion)	Tonne							684.0	35%	EMF: DEFRA
Sewerage waste - Fat and grease (Combustion)	Tonne							684.0	35%	EMF: DEFRA
Sewerage waste - Sludge from biological treatment (Landfill)	Tonne							700.21	35%	EMF: DEFRA
Sewerage waste - Sand (Landfill)	Tonne							0	35%	EMF: DEFRA
Waste - General (Combustion)	Tonne							6.41	35%	EMF: DEFRA
Waste - Bulk (Landfill)	Tonne							1.23	35%	EMF: DEFRA
Waste - Asbestos (Landfill)	Tonne							5.91	35%	EMF: DEFRA
Waste - Metal (Closed loop)	Tonne							0.98	35%	EMF: DEFRA
Waste - Timber, unpainted (Composting)	Tonne							8.88	35%	EMF: DEFRA
Waste - Timber, painted (Combustion)[9]	Tonne							6.41	35%	EMF: DEFRA
Waste - Garden waste (Landfill)	Tonne							646.61	35%	EMF: DEFRA
Waste - Glass and minerals (Landfill)	Tonne							8.88	35%	EMF: DEFRA
Waste - Tyres (Closed loop)	Tonne							6.41	35%	EMF: DEFRA
Waste - Plastic (Combustion/Closed loop)	Tonne							6.41	35%	EMF: DEFRA

Scope 3 emission factors - Continued

Emission factor (EMF[1]), kg GHG										
Emission source	**Activity data unit**	**CO_2**	**CH_4**	**N_2O**	**HFC**	**R454c**	**SF_6**	**CO_2-eq.**	**Uncertainty**	**Data source**
Waste - Currugated cardboard (Closed loop)	Tonne							6.41	35%	EMF: DEFRA
Waste - Mixed cardboard (Closed loop)	Tonne							6.41	35%	EMF: DEFRA
Waste - Office paper (Closed loop)	Tonne							6.41	35%	EMF: DEFRA
Waste - Newspapers and magazines (Closed loop)	Tonne							6.41	35%	EMF: DEFRA
Waste - Organic (Composting)	Tonne							8.88	35%	EMF: DEFRA
Hazardous Waste - Unknown material (Landfill)	Tonne							497.04	35%	EMF: DEFRA
Hazardous Waste - Light bulbs (Landfill)	Tonne							6.41	35%	EMF: DEFRA
Hazardous Waste - Batteries (Open loop)	Tonne							6.41	35%	EMF: DEFRA
Hazardous Waste - Accumulators (Landfill)	Tonne							6.41	35%	EMF: DEFRA
Hazardous Waste – Electrical items (Open loop)	Tonne							6.41	35%	EMF: DEFRA
Hazardous Waste – Paint and printing waste (Landfill)	Tonne							520.33	35%	EMF: DEFRA
Hazardous Waste – Oil and oil contaminated waste (Landfill)	Tonne							520.33	35%	EMF: DEFRA
Hazardous Waste – Plaster (Landfill)	Tonne							71.95	35%	EMF: DEFRA
Hazardous Waste – Solvents	Tonne							0	35%	EMF: EAI
Hazardous Waste – Organic hazardous material and cooking oil	Tonne							0	35%	EMF: EAI
Hazardous Waste – Inorganic hazardous material	Tonne							0	35%	EMF: EAI
Employee commute – Petrol/diesel[10]	km travelled							0.198	5%	EMF: EAI
Employee commute – EV[11]	km travelled							0	5%	EMF: EAI
Employee commute – Plug in hybrid	km travelled							0	5%	EMF: EAI
Employee commute – Full hybrid	km travelled							0.137	5%	EMF: EAI
Employee commute – Methane	km travelled							0.027	5%	EMF: EAI
Employee commute – Motorcycle	km travelled							0.067	5%	EMF: EAI
Employee commute – Carpool[12]	km travelled							0.1	5%	EMF: EAI
Employee commute – Walking/bike/scooter	km travelled							0	5%	EMF: EAI
Employee commute – Bus/Strætó[13]	km travelled							0.051	5%	EMF: EAI
Employee commute – WTT[14]	km travelled							Variable	5%	EMF: DEFRA
Business travel – Air travel (TTW)[15]	Passengers/trip							Variable	45%	EMF: ICAO
Business travel – Air travel (WTT)[16]	Passengers/trip							Variable	45%	EMF: DEFRA

Scope 3 emission factors - Continued

Emission factor (EMF[1]), kg GHG										
Emission source	**Activity data unit**	**CO_2**	**CH_4**	**N_2O**	**HFC**	**R454c**	**SF6**	**CO_2-eq.**	**Uncertainty**	**Data source**
Business travel – Hotel stays[17]	Nights							38.8	5%	EMF: DEFRA
Downstream event related travel (TTW)	Passengers/trip							Variable	45%	EMF: ICAO
Downstream event related travel (WTT)	Passengers/trip							Variable	45%	EMF: DEFRA
Investments	person/day									

[1]The EMF can be variable between years. Table shows EMF for 2024, EMF for previous years may differ. The most recent EMF, from the "Data source" column is used.

[2] Includes purchased made in the procurement system, including transportation paid for indirectly as well as any major purchased made outside the procurement system. All emissions paid for in the reporting year are included as emissions in the same year.

[3]Fuel use of 5.93 l diesel per m^3 is assumed. This is based on fuel use factors in LOKI a Icelandic carbon calculator for infrastructure. The calculator is a collaborative project between Efla and Vegagerðin, the calculator has not been officially released to the public yet. The DEFRA emission factor for average biofuel blend of diesel is used to calculate emissions from fuel use. For WTT see fuel use WTT- Diesel and footnote 9.

[4] Same fuel use of HVO as for diesel með m^3 assumed. DEFRA emission factor for HVO used, this is 0,036 kg CO_2eq/l. For WTT seefuel use WTT- HVO and footnote 8.

[5]Only freight services directly paid for by RE, indirect freight services included in purchased goods and capital goods. Average EMF of land, sea and air transportation used from carbon saver. Note that this emission factor includes both TTW and WTT.

[6] Only purchased and used electricity from suppliers other than ON Power, upstream emissions from heating and electricity from ON power are already included in scope 1.

[7] Same approach as scope 2: The EMF form the EAI is applied to electricity purchased from 3rd parties, electricity purchased from ON Power is already included in scope 1. Landsnet losses around annually 2%, see: landsnet.is/fjarmal/lykiltolur/

[8] Well-to-tank (WTT), upstream emissions from fuel use in scope 1, the EMF is also applied to calculate upstream fuel use from contractors in scope 3, with the same fuel usage per m^3 as TTW.

[9] Change in waste handilg from landfilling in 2016-2023 to combustion in 2024. This results in a considerable decrease in emissions form waste.

[10] EMF is adjusted from EAI. Diesel and petrol average.

[11] In-house charging assumed to cover transportation to and from work, emissions from electricity therefore assumed to be included in scope 1/2.

[12] EMF is adjusted from EAI. Average of 2 people assumed in diesel/petrol car.

[13] EMF is adjusted from EAI. Diesel bus with average of 15 passengers assumed.

[14] Well-to-tank (WTT), upstream emissions from employee commuting is assumed as 22%, this is the DEFRA ratio for petrol WTT and TTW.

[15] EMF is not used as different emissions are different between destinations. Radiative Forcing Factor of 3 is applied to EMFs from the ICAO. See Radiative Forcing Associated with Emissions from Air Travel and Lee, D. S. (2020). The Contribution of Global Aviation to Anthropogenic Climate Forcing for 2000 to 2018. Atmospheric Environment, 244, 117834. https://doi.org/10.1016/j.atmosenv.2020.117834. Same methodology is applied to Downstream event related travel TTW.

[16]Well-to-tank (WTT), upstream emissions from air travel is assumed as 12% of airtravel TTW (without the radiative forcing factor). This is based on the TTW and WTT airtravel emission factors from DEFRA.Same methodology is applied to Downstream event related travel WTT

[17] Average of all DEFRA hotel stay EMFs

Biogenic emission factors

Emission factor (EMF[1]), kg GHG										
Emission source	**Activity data unit**	**CO_2**	**CH_4**	**N_2O**	**HFC**	**R454c**	**SF6**	**CO_2-eq.**	**Uncertainty**	**Data source**
Methane[2]	Nm^3							0.918		EMF: DEFRA
Disel (average biofuel blend)	Litres							0.16		EMF: DEFRA
Petrol (average biofuel blend)	Litres							0.13		EMF: DEFRA

[1]The EMF can be variable between years. Table shows EMF for 2024, EMF for previous years may differ. The most recent EMF, from the "Data source" column is used.
[2] The DEFRA EMF for landfill gas is used and converted to Nm^3.

Methodology for Biodiversity and Land Based Carbon Insetting Projects

This section discusses the methodology for estimating emissions and sequestration related to land reclamation, afforestation, and rewetting of peatlands.

Significance criteria

All scope 1 emissions in the carbon insetting projects, such as those due to fuel use and fertilizer use, are counted for and reported in RE's climate account. Emissions due to fuel use (TTW) and fertilizer use are specified in RE's climate account under scope 1, for both afforestation and land reclamation, but there is no fertilizer use in rewetting of peatland. No electricity or heating (scope 2) is purchased for these projects. Indirect emissions in scope 3 must meet significance criteria to be included in the climate account, sources like fuel use (WTT) and commuting of employees to the carbon insetting sites. Actions such as fence maintenance, use of tools, safety clothing and production of grass seeds are not significant and therefore excluded. The significance criteria are the same as for the GHG emissions and are defined in the RE climate account signifigance criteria table on page 24.

Included greenhouse gases for biodiversity land based carbon insetting projects

Greenhouse gas	GWP(100) AR5	Explanation
Carbon dioxide (CO_2)	1	CO_2 is released form fuel use (TTW) and (WTT).
Methane (CH_4)	28	CH_4 is released from decay of biological material.
Nitrous oxide (N_2O)	265	N_2O is released due to fertilizer use.

Included greenhouse gases for Biodiversity and Land-Based Carbon Insetting Projects

The table for included GHGs shows the greenhouse gas (GHG) released directly in RE's carbon insetting projects, i.e. carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O).

Exclusions for Biodiversity and Land-Based Carbon Insetting Projects

RE's climate account includes all scope 1 and 2 emissions, as well as scope 3 emissions that fall within the significance criteria. Scope 1 activities that have negligible emissions, and as a result are not included in the climate account are listed below. Identified scope 3 activities that are excluded are also listed and explained.

Land use activities (scope 1). Where land that is distributed in RE's operations is restored and reclaimed. Nature-based restoration activities of disrupted land are considered to compensate for the emissions caused by the disruption, making the emissions arising from the disruption as negligible. The sequestration from the land reclamation of disrupted areas is therefore not included in the carbon sequestration calculations.

Categories that do not meet significance criteria (scope 3), are fuel use of contractors, fencing and fencing maintenance, purchases such as tools, safety clothing and production of grass seeds.

Sparsely vegetated or bare land. Carbon sequestration or emission from land owned by RE where there has been no land use, land reclamation, or afforestation are not accounted for, as emissions from sparsely vegetated or bare land are considered negligible according to the Icelandic National Inventory Report 2023, section 6.10.1, (CRF 4F1).

Changes in methodology and corrections of Biodiversity and Land-Based Carbon Insetting Projects

Since 2023, focus has been put on improving the data management and data quality of the GHG inventory data include the data related to the biodiversity and land-based carbon in setting projects. For the carbon in setting projects this improvement in data management includes a better overview of the projects accessible to employees in the company GIS system, an overview of the land reclamation projects also available publicly here: LUKSjá. No changes have been made to the methodology

in terms of estimating the emissions and sequestration of the biodiversity and land-based carbon in setting projects.

Sequestration and emission factors

Reykjavík Energy (RE) is involved in various projects that contribute to the land-based carbon sequestration and emissions of carbon dioxide in vegetation and soil, through afforestation, land reclamation, and peatland restoration activities. Sequestration factors and emission factors (EMF) are selected to give the best and most accurate reflection of RE's GHG sequestration and emissions. Sequestration factors and EMF are selected to give the best and most accurate reflection of RE's GHG sequestration and emissions, see table on page 34 to 35. Please note that EMFs due to fuel and fertilizer use in nature-based carbon insetting projects is discussed in the section on Emission Factors above, page 26-32

Sequestration factors or similar information that is received directly from RE have priority. This applies to sequestration in afforestation which are RE-specific, that is which are measured on RE's land and published by the Agricultural University of Iceland,. When specific RE sequestration factors are not available, then sequestration factors are used which are applicable to Icelandic conditions and published by the Environment Agency of Iceland and a new agency, Land og skógur, e.g. merging of the Soil Conservation Service of Iceland , and the Icelandic Forest Service . This applies for example to land reclamation sites and rewetted peatland.

If no Iceland-specific sequestration factors are available, general IPCC factors, which are also used in Iceland's National Inventory Report, are used.

Sequestration factors

An overview of the sites and projects where afforestation, land reclamation and rewetting of peatland have taken place 2016-2024

Sequestration source (site)	Project	Sequestration factor unit (tonn CO_2-eq/ha)	Uncertainty (95% confidence interval)	Sequestration factor source
Afforestation - sequestration above ground				
Heiðmörk	Young forest <10 years	0.67	23%	Sigurdson et al, 2008
Heiðmörk	Conifer forest <5m	7.8	23%	Vidarson, G.J, 2023, table 11
Heiðmörk	Conifer forest >5m	15.2	23%	Vidarson, G.J, 2023, table 11
Heiðmörk	Mixed forest	3.2	23%	Vidarson, G.J, 2023, table 11
Heiðmörk	Natural birch forest	1.2	23%	Vidarson, G.J, 2023, table 11
Ölfusvatn	Conifer forest	8.0	50%	Vidarson, G.J, 2023, table 12
Ölfusvatn	Planted birch forest	0.4	50%	Vidarson, G.J, 2023,table 12
Nesjavellir	Planted birch forest	0.6	50%	Vidarson, G.J, 2023, table 13
Nesjavellir	Natural birch forest	0.7	50%	Vidarson, G.J, 2023, table 13
Land reclamation - revegetation				
Hellisheidi Kolviðarhóll[1]	Grassland/Mossy Heathland/Heathland	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Hellisheidi Húsmúli[1]	Grassland/Mossy Heathland/Heathland	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Hellisheidi Svínahraun[1]	Grassland/Mossy Heathland/Heathland	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Hellisheidi Gráuhnjúkar[1]	Grassland/Mossy Heathland/Heathland	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Hellisheidi Hverahlíð[1]	Grassland/Mossy Heathland/Heathland	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Hellisheidi Hjallatorfa[1]	Grassland/Mossy Heathland/Heathland	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Nesjavellir dalir[1]	Grassland/Mossy Heathland/Heathland)	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Nesjavellir[1]	Grassland/Mossy Heathland/Heathland	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Andakíll[1]	Grassland/Mossy Heathland/Heathland	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Heidmörk[1]	Grassland/Mossy Heathland/Heathland	2.1	20%	EAI - 2024 National Inventory report, table 6.22
Soil sequestration in afforestation sites				
Heiðmörk	Afforestation	1.50	85%	Vidarson, G.J, 2023, table 11
Ölfusvatn	Afforestation	1.50	85%	Vidarson, G.J, 2023, table 11
Nesjavellir	Afforestation	1.50	85%	Owona, J. 2019, table 20

Sequestration factors - Continued

An overview of the sites and projects where afforestation, land reclamation and rewetting of peatland have taken place 2016-2024

Sequestration source (site)	Project	Sequestration factor unit (tonn CO_2-eq/ha)	Uncertainty (95% confidence interval)	Sequestration factor source
Rewetted peatland				
Hjallatorfa	Peatland	13.5	83%	Losun gróðurhúsalofttegunda úr votlendi,VSÓ, 2020, Table 3.1
Emissions deducted from sequestration				
All	All land reclamation projects	0		
All	Coniferous and mixed forests	0.3		
Young forest	All afforestation projects	0.2478		

[1]Mineral soil (0,51 t C/ha/ár x 3.67 CO_2/C) + Biomass (0,06 t C/ha/ár x 3.67 CO_2/C)
[2]Median value is used (2.3-29.19)

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INDEPENDENT LIMITED ASSURANCE STATEMENT

To the intended user of Reykjavik Energy

Introduction and objectives of work

Bureau Veritas Denmark has been engaged by Reykjavik Energy to provide limited assurance of the following report within the organisational and reporting boundaries of the company as described below:

The assertion or report of the company covered by the statement:

The report to be verified is "*Climate account 2024 Reykjavik Energy_updated February 27, 2025"* for the year 2024 using the base year 2016.

The organisational boundary of the company covered by the statement:

The organisational boundary of the climate account is defined by the operational control approach. Reykjavík Energy (RE) has operational control over its subsidiaries, namely ON Power, Veitur Utilities, Reykjavík Fibre Network, and Carbfix. All the addresses within Reykjavik Energy and its subsidiaries are included. The headquarter is situated at Bæjarháls 1, 110 Reykjavík, Iceland

Associated companies in which RE holds a minority stake are not considered within the operational control approach. These are Orkuskólinn REYST, Netorka hf., Íslensk Nýorka, and Aflvaki. Associated companies are those where RE has limited influence over the financial and operational policy but does not have operational control. The company name Reykjavík Energy (RE) is used when referring to all the companies within the organisation and organisational boundary.

The reporting boundaries of the company covered by the statement:

Emissions sources are defined according to the GHG Protocol, with scope 1 (direct emissions), scope 2 (indirect emissions from energy use), and scope 3 (other indirect emissions) along with a scope for carbon insetting and a specific scope for carbon dioxide equivalents (CO_{2e}) emissions of biological origin. All emissions sources from scope 1 and 2 are included, while emissions sources in scope 3 are selected based on the significance criteria:

- Significant if emissions are more than 5% of RE's total emissions.
- Significant if emissions are less than 5% of RE's total emissions but emissions are due to activities that RE outsources: This applies to borehole drilling which is a key activity in the operations of utility systems, geothermal power plants, and carbon sequestration. This also applies to trench digging which is an important part of RE's operations.

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- Significant if emissions are less than 5% of RE's total emissions but emission is due to employee commute to and from work as well as business-related air travel.
- Significant if emissions are less than 5% of RE's total emissions but sector-specific guidance for RE emphasizes specific emission categories, for example from the GHG Protocol or SBTi.
- Significant if emissions are less than 5% of RE's total emissions but activity data is readily available.

All excluded sources falling outside those criteria are well explained.

Reporting criteria document or standard used for the verification:

The reporting criteria is all the requirements of DS/EN ISO 14064-1:2019.

Assessment Standard for Bureau Veritas Certification

Bureau Veritas Certification DK holds a DANAK accreditation to verify a company assertion / report of the International Standard DS/EN ISO 14064-1:2019 Greenhouse gases - Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals in accordance with the requirements to the verification body laid down in the international ISO 14064-3:2019 Greenhouse gases - Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions.

The conclusion of the statement

Limited assurance:

On the basis of our methodology and the activities described above, nothing has come to our attention to indicate that is "*Climate account 2024 Reykjavik Energy_updated February 27, 2025" for the year 2024 using the base year 2016* has not been prepared, in all material respects, in accordance with the criteria document DS/EN ISO 14064-1:2019 and with a materiality of 5 %.
The following emissions have been verified:

Total emission from sources: 73.745 tonnes CO2e
Scope 1 emissions verified: 53.160 tonnes CO2e
Scope 2 location-based emissions verified: 0 tonnes CO2e
Scope 3 emissions verified: 20.585 tonnes CO2e
Biogenic emissions verified: 40 tonnes CO2e

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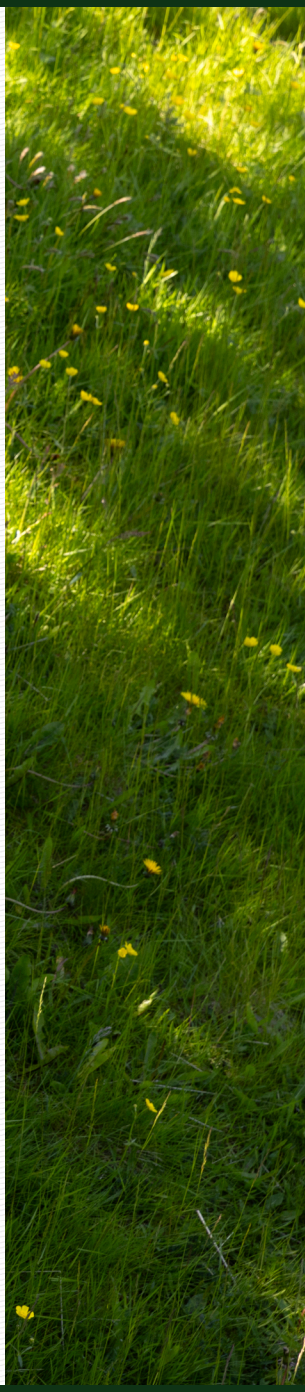

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Total GHG sequestration and offsetting: -8275 tonnes CO2e
Total biodiversity and land insetting projects: emissions verified:
-7075 tonnes CO2e
Offsetting project in Malawi: -1200 tonnes CO2e

Net emissions: 65.470 tonnes CO2e

Limitations and exclusions of the statement

Not covered by the statement is any information relating to:

- Activities outside the defined verification period 2024 and the baseline 2016; and
- Other information included in the Report which are not covered in the criteria document.

This limited assurance engagement relies on a risk based selected sample of data and the associated limitations that this entails.

Limited: This independent statement should not be relied upon to detect all errors, omissions or misstatements that may exist.

Bureau Veritas Certification Denmark A/S
Fredericia
March 7th 2025

Morten Bertelsen

This statement can only be used in its entire length including annexes.

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Annex 1: Summary of work performed.

As part of its independent verification, Bureau Veritas undertook the following activities:

1. Assessed the appropriateness of the Reporting Criteria for the Selected Information;
2. Conducted interviews with relevant personnel of Reykjavik Energy;
3. Carried out detailed on-site review of data from Reykjavik Energy sites;
4. Reviewed the data collection and consolidation processes used to compile the Selected Information, including assessing assumptions made, the data scope and reporting boundaries;
5. Reviewed documentary evidence produced by Reykjavik Energy;
6. Agreed a sample of the Selected Information to the corresponding source documentation; and
7. Re-performed aggregation calculations of the Selected Information.
8. Obtain limited assurance about whether the Selected Information has been prepared in accordance with the Reporting Criteria;
9. Form an independent conclusion based on the assurance procedures performed and evidence obtained; and
10. Report our conclusions to the management of Reykjavik Energy.

Annex 2: Statement of Independence, Integrity and Competence

This preparation and presentation of the Selected Information in the Report are the sole responsibility of the management of Reykjavik Energy.

Bureau Veritas was not involved in the drafting of the Report or of the Reporting Criteria.

Bureau Veritas Denmark has been accredited by the Danish Accreditation Body (DANAK) for a wide range of ISO Management Standards since their issues with all the requirements needed for an independent third-party certification body.

Regarding GHG schemes and standards, Bureau Veritas is accredited by the Danish Accreditation Body (DANAK) for performing GHG Verification and Validation in accordance with:

DS/EN ISO 14064-1:2019 Specification with guidance at the organisation level for quantification and reporting af GHG emissions and removals or

DS/EN ISO 14064-2:2019 Specification with guidance at the project level for quantification, monitoring and reporting of GHG emission reductions or removal enhancements

following the requirements in

ISO 14064-3:2019 Specification with guidance for the verification and validation of GHG statements and ISO 14065:2013.

The verification team for this work does not have any involvement in any other Bureau Veritas projects with Reykjavik Energy.

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