Landsvirkjun

Climate Accounts
2023

Climate Accounts 2023

I hereby confirm Landsvirkjun's Climate Accounts and carbon footprint for 2023.

Release Date
2nd of March 2024

Hörður Arnarson, CEO Landsvirkjun

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Our vision is a sustainable world, powered by renewable energy. We take climate change very seriously and believe that taking responsibility is our most significant contribution to powering a sustainable future.

The Climate Accounts contain numerical information on Landsvirkjun's carbon footprint, greenhouse gas emissions, and carbon sequestration for 2023, as well as information on the status of the Company's climate targets.

↓ Key Figures

Carbon footprint
13,518 t CO_2-eq ↑22%

Net carbon intensity
0.92 g CO_2-eq/kWh ↑22%

Total GHG emissions
49,312 t CO_2-eq ↑7%

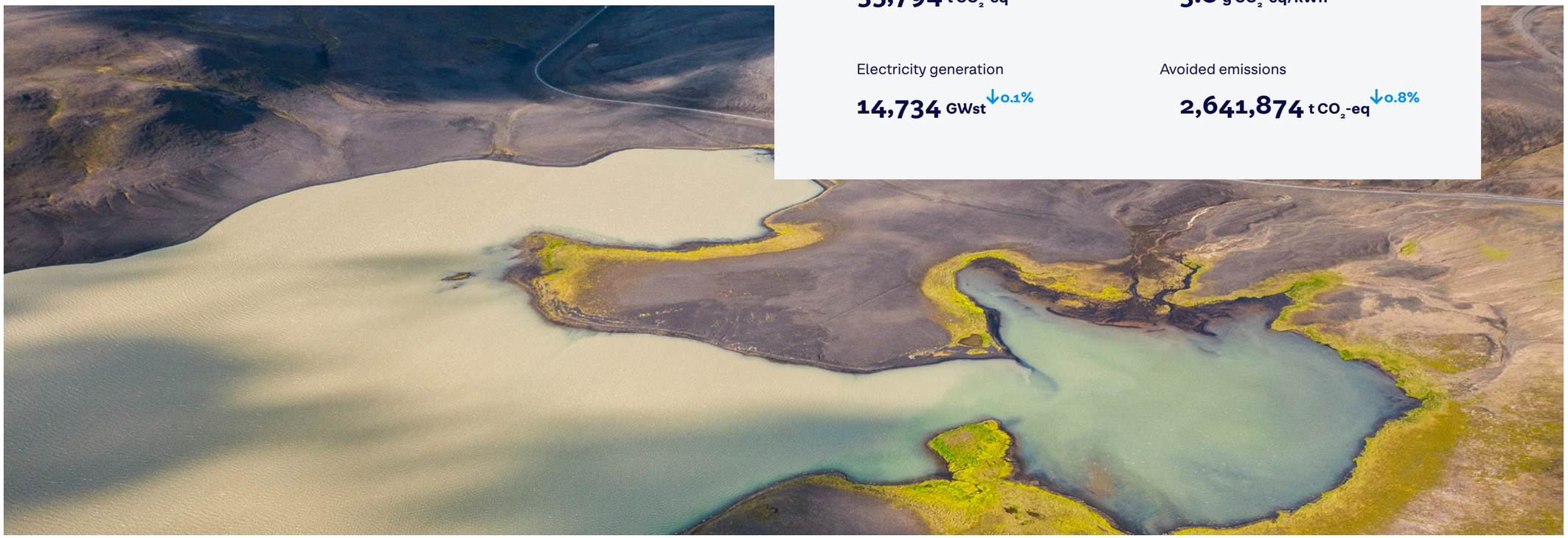
Carbon intensity
3.3 g CO_2-eq/kWh ↑7%

Carbon sequestration
35,794 t CO_2-eq ↑2%

Carbon intensity of electricity generation
3.0 g CO_2-eq/kWh ↑5%

Electricity generation
14,734 GWst ↓0.1%

Avoided emissions
2,641,874 t CO_2-eq ↓0.8%



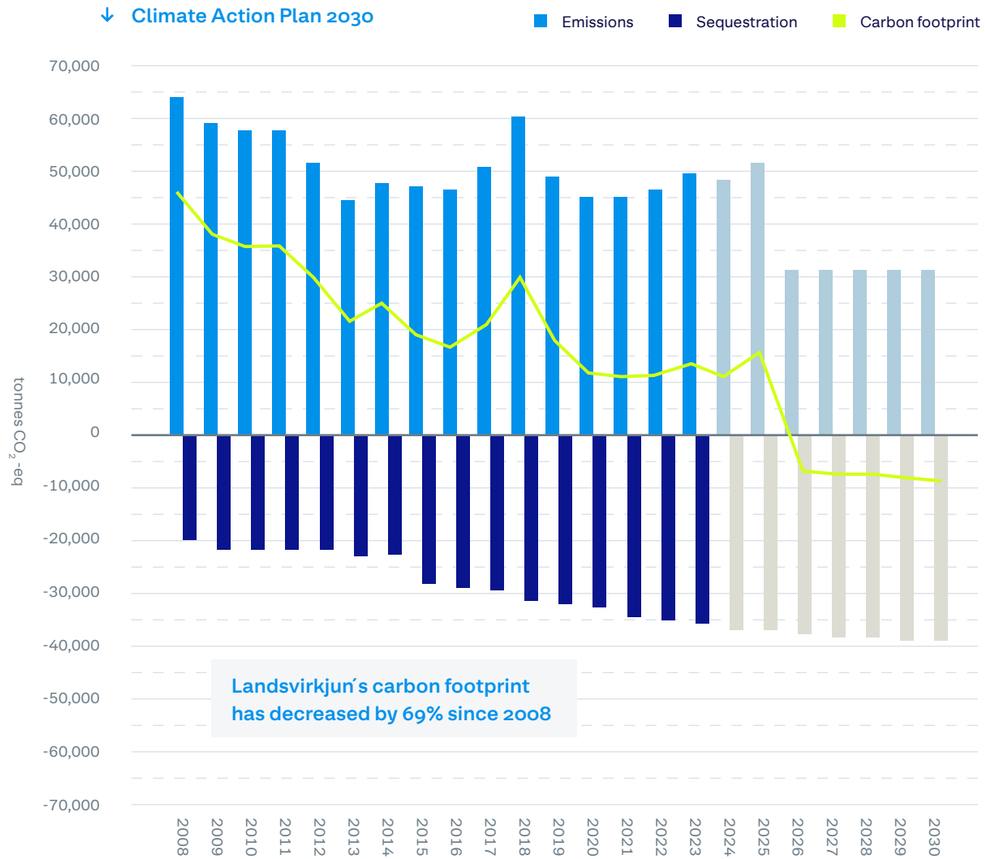
Climate Action Plan

Our path to carbon neutrality is outlined in our climate action plan

Action prioritisation

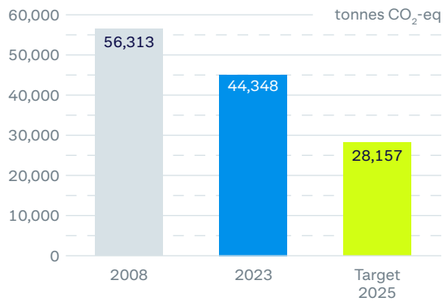
Prevent emissions	**Priority**
Reduce current emissions	**Priority**
Implement mitigation measures	

Our Climate Action Plan →
The climate action plan dashboard →

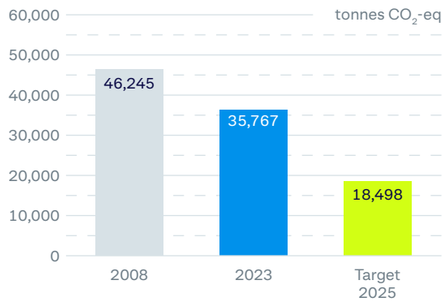


Climate Targets and Progress

50% reduction in direct emissions in 2025 vs. 2008

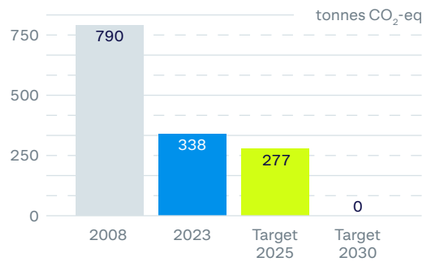


60% reduction in geothermal emissions in 2025 vs. 2008

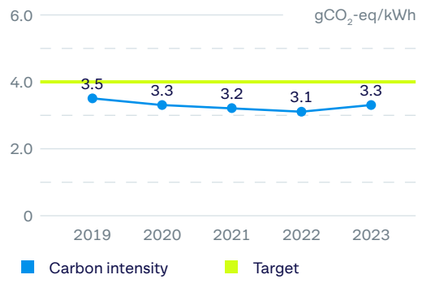


Purchases of fossil fuel will end in 2030

65% reduction in emissions from combustion of fossil fuels on 2025 vs. 2008



We are committed to keeping our carbon intensity below 4 gCO_2-eq/kWh



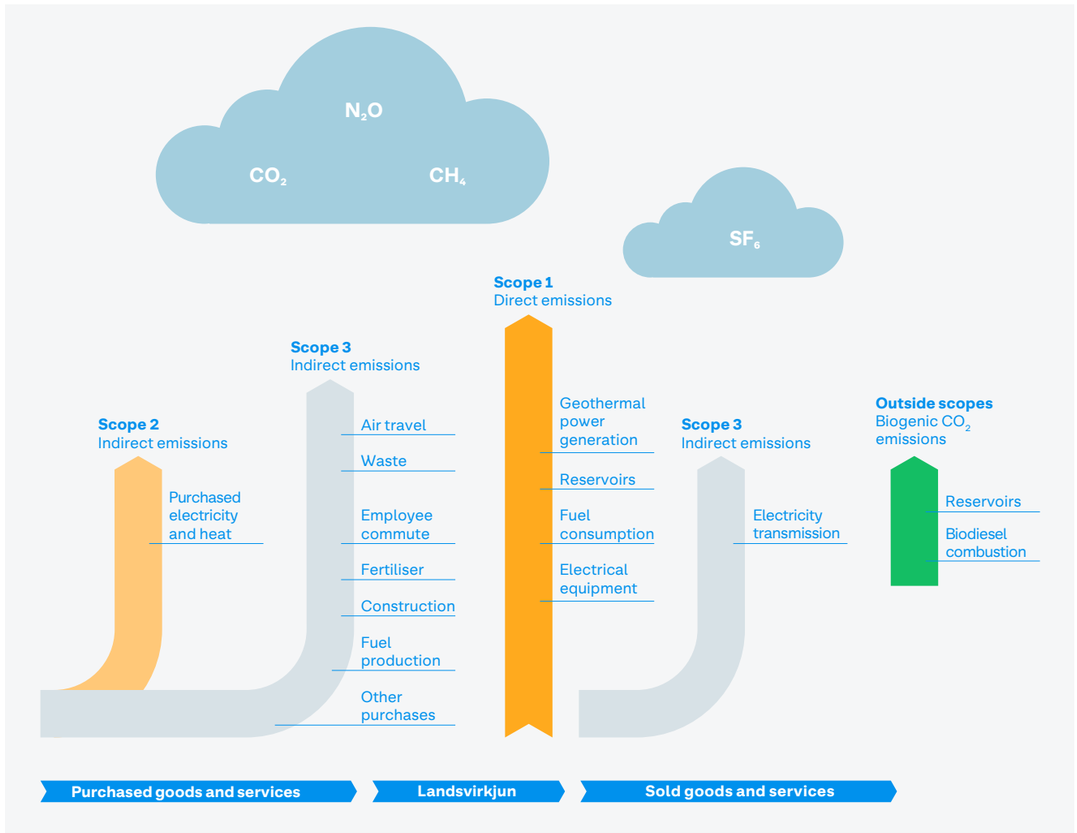
Climate Accounts

We use the Greenhouse Gas Protocol (GHGP) methodology for our Climate Accounts, a well-renowned international standard for measuring greenhouse gas (GHG) emissions and sequestration measures.

We include emissions from our operations and subsidiaries, Landsvirkjun Power and Icelandic Power Insurance. The accounts do not cover Landsvirkjun Power projects elsewhere in the world or businesses that Landsvirkjun owns shares in but does not directly control. The Appendix (Climate Accounting Methodology) provides more detailed information about the methodology we use to calculate the Company's carbon footprint.

We are committed to providing correct and transparent information. The international audit company Bureau Veritas has reviewed and confirmed our Climate Accounts, according to ISO 14064-3, with limited assurance (see below).

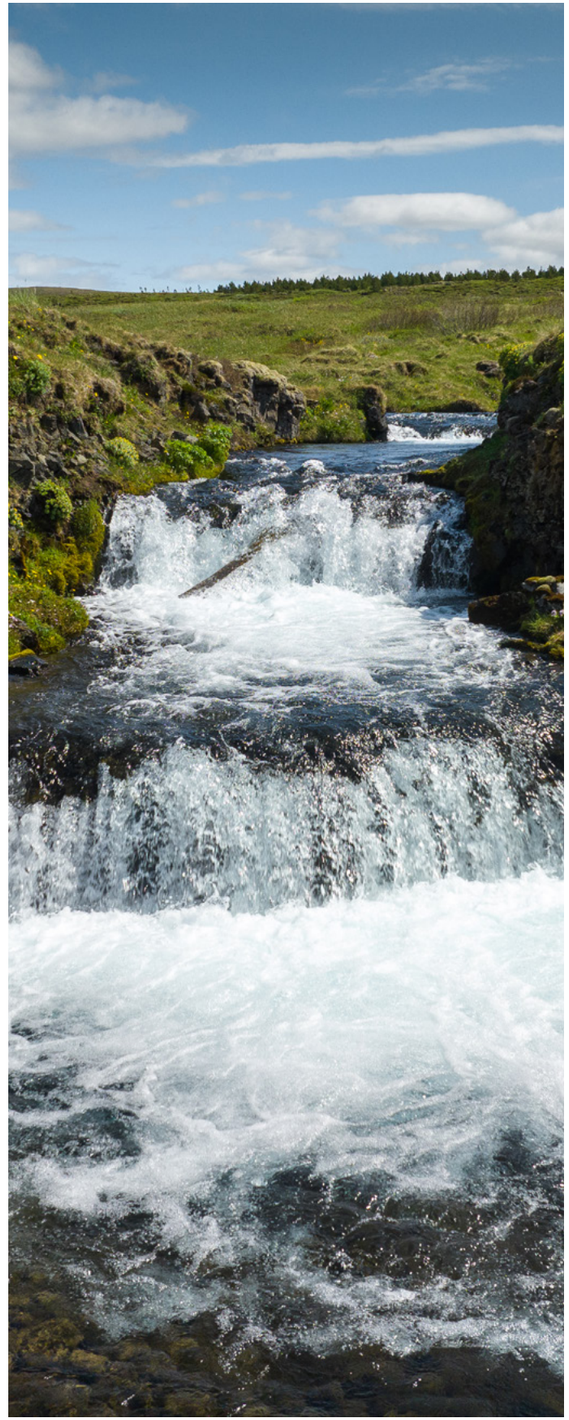
↓ Landsvirkjun's emissions sources categorised by scope.



Greenhouse Gas Emissions

↓ GHG emissions (t CO_2-eq)

	2019	2020	2021	2022	2023	Change since 2022
Scope 1						
Geothermal energy	32,235	30,651	32,288	34,225	35,767	4.5%
Reservoirs (CH_4)	8,644	7,711	7,410	7,459	8,111	8.7%
Fuel combustion	480	349	443	380	338	-11%
Electrical equipment	192	15	105	68	132	95%
Total Scope 1	**41,550**	**38,727**	**40,245**	**42,132**	**44,348**	**5.3%**
Scope 2						
Purchased electricity, location-based	7.6	9.0	5.5	6.4	6.3	-0.3%
Purchased electricity, market-based	7.6	9.0	5.5	6.4	2.2	-65%
Purchased heating	18	22	18	20	19	-0.7%
Total Scope 2, location-based	**26**	**31**	**23**	**26**	**26**	**-0.6%**
Total Scope 2, market-based	**26**	**31**	**23**	**26**	**22**	**-16%**
Scope 3						
Electricity transmission	1,434	2,262	1,929	1,518	1,151	-24%
Fertiliser	958	1,657	1,295	1,091	1,186	8.7%
Construction	3,277	1,009	643	304	1,335	339%
Fuel	206	153	172	159	161	1.2%
Commute to work	94	69	107	95	94	-0.5%
Air travel	315	67	82	190	258	36%
Waste	42	36	42	35	44	26%
Classification rate	84%	87%	86%	89%	79%	-11%
Total Scope 3	**6,324**	**5,254**	**4.269**	**3,391**	**4,229**	**25%**
Outside Scopes						
Reservoirs (CO_2)	646	591	549	613	624	1.8%
Biodiesel combustion (CO_2)	80	56	62	85	85	0.34%
Total outside Scopes	**725**	**646**	**611**	**698**	**709**	**1.6%**
Total emissions	**48,626**	**44,657**	**45,148**	**46,246**	**49,312**	**6.6%**
Carbon Sequestration	**-31,900**	**-33,000**	**-34,400**	**-35,151**	**-35,794**	**1.8%**
Carbon footprint	**16,726**	**11,657**	**10,748**	**11,095**	**13,518**	**22%**



Changes Between Years

Scope 1

Geothermal energy

Geothermal power stations' GHG emissions increased by 5% annually, while electricity generation from these stations stayed constant over the years. Still, carbon intensity increased by 5% yearly, which can be attributed partially to increased well discharge testing compared to the previous year.

Reservoirs (CH_4)

Methane emissions from reservoirs increased 9% from the previous year, with 2023 experiencing more ice-free days than 2022. The number of ice-free days influences reservoir emissions.

Fuel

Fossil fuel emissions decreased by 11% year on year. We are actively focused on energy transition within our vehicle and equipment fleet, with 85% of the Company's passenger vehicle fleet now running on clean energy. This reduction aligns with our energy transition plan, which aims to stop purchasing fossil fuels by 2030.

Electrical equipment

In 2023, the leakage of SF_6 insulation gas from electrical equipment in the Þjórsá and Fljótsdalur station areas was 5.6 kg. As SF_6 is a highly potent greenhouse gas, this emission is equivalent to 132 tonnes of CO_2, representing a 95% increase compared to 2022. The significant difference between years can mainly be attributed to SF_6 refills in equipment every few years due to slow leaks, with emissions recorded in the refilling year.

Scope 2

Purchased electricity

In 2023, location-based emissions due to purchased electricity remained consistent year over year, while market-based emissions from purchased electricity saw a significant decline of 65% from the previous year. During this period, guarantees of origin were cancelled from Landsvirkjun's generation against purchased electricity, with the emission factor for our electricity generation utilised to compute market-based emissions. In contrast, in 2022, guarantees of origin were linked to wholesale electricity, and the average emission factor for the Icelandic electricity grid was used to calculate market-based emissions. Landsvirkjun's electricity generation emission factor is notably lower than the average emission factor of the Icelandic grid.

The Environment Agency has recently updated its methodology for calculating average emissions from energy production in Iceland and corrected historical emission factors on electricity generaiton. Consequently, emissions from purchased electricity are lower than those in the 2022 Climate Accounts.

Purchased heating

Emissions from purchased hot water production have remained stable over successive years. Recently, the Environment Agency revised its methodology for calculating the average emission factor for energy production in Iceland and updated historical emission factors on geothermal hot water. Consequently, emissions from purchased hot water production are higher than reported in the 2022 Climate Accounts.

Scope 3

Electricity transmission

Electricity transmission emissions decreased by 24% between years. This reduction is linked explicitly to emissions from the insulation medium SF_6 used in electrical equipment in Landsnet's substations. The decrease between years can be attributed to Landsnet's enhanced monitoring and proactive equipment maintenance practices.

Fertiliser

The emissions from fertiliser use in our land reclamation and forestry projects increased by 9% between years. The fluctuation in fertiliser purchases year-on-year is due to the various projects we work on each time. We adjust fertiliser use based on vegetation growth. In 2023, we purchased more fertiliser than the previous year. By applying an internal carbon price to evaluate fertiliser bids, we account for emissions during procurement.

Construction

There was a significant 340% increase in emissions related to project construction between years. Emissions fluctuate depending on the scope of projects each year. For the first time in our Climate Accounts for 2023, we include emissions attributed to steel and cement used in construction projects, partly explaining the rise in emissions between years.

Fuel

Fuel emissions in scope 3 increased by 1% between years. This includes emissions from rental cars and the production and transportation of the fuel used in our vehicles and equipment. The rise is linked to higher rental car usage than the previous year. At the same time, fuel production and transportation emissions decreased due to lower fuel consumption in our vehicles and equipment.

Commute to work

Employee commuting emissions to and from work decreased by 1% between years. Employees who commute to and from work sustainably are offered transportation benefits. The proportion of salaried employees utilising transportation benefits increased from 24% in 2022 to 25% in 2023.

Air travel

Emissions from employee air travel saw a substantial 36% increase year-on-year. Nevertheless, these emissions were still 18% lower than the levels recorded in 2019, before the outbreak of the COVID-19 pandemic, which greatly affected air travel.

Waste

Emissions from waste treatment increased by 26% year-on-year. The quantity of waste generated from operations can fluctuate significantly annually, mainly depending on the number and scope of renovation and maintenance projects ongoing at any given time. The proportion of sorted waste decreased from 89% in 2022 to 79% in 2023.

In 2023, more detailed information was acquired regarding disposal routes from waste recipients. This led to adjustments in the calculations for previous years' emissions, showing that waste treatment emissions were lower than initially reported in the 2022 Climate Accounts.

Outside Scopes

Reservoirs (CO_2)

Carbon dioxide emissions from reservoirs increased by 2% between years, attributable to an increase in ice-free days relative to the previous year, affecting the emission levels based on the duration of ice-free periods. The methodology for assessing carbon dioxide emissions from reservoirs has been revised to align with the latest guidelines from the Intergovernmental Panel on Climate Change (IPCC), resulting in no estimations for reservoirs older than 20 years. Most of Landsvirkjun's reservoirs exceed the 20-year threshold, so emission levels are notably lower than reported in the 2022 Climate Accounts. More information on the revised methodology can be seen in the chapter on Climate Accounting Methodology.

Biodiesel combustion (CO_2)

Carbon dioxide emissions from burning biodiesel have remained consistent over the years. We continue using biodiesel in our operations due to its lesser environmental impact than traditional fuels.

Carbon Sequestration

Carbon sequestration has increased by 2% between years. Most of the carbon sequestration stems from land reclamation activities or 91%. Additional carbon sequestration efforts on our part come from forestry and wetland restoration projects.
The year-on-year rise is credited to continued efforts and expanding land reclamation and forest growth. Data on carbon sequestration is predicated on evaluations conducted by Land and Forest Iceland (previously the Icelandic Forest Service and the Soil Conservation Service of Iceland), with comprehensive information on the methodology available in the chapter on Climate Accounting Methodology.

Electricity Generation

↓ Electricity generation (GWh)

	2019	2020	2021	2022	2023	Change since 2022
Geothermal energy	1,084	972	1,052	1,255	1,248	-0.6%
Hydropower	12,867	12,458	13,074	13,494	13,480	-0.1%
Wind power	6.6	6.7	6.1	5.7	6.2	8.3%
Total electricity generation	**13,957**	**13,437**	**14,132**	**14,755**	**14,734**	**-0.1%**
Own consumption	91	87	85	95	102	7.7%
Losses	51	49	50	55	54	-2.5%
Electricity delivered to the grid	**13,816**	**13,302**	**13,996**	**14,605**	**14,578**	**-0.2%**

In 2023, Landsvirkjun's energy generation totalled 14,734 GWh, with 14,578 GWh fed into the grid, a consistent amount compared to the previous year. Landsvirkjun accounted for 74% of the electricity supplied to the grid during that period.

Carbon Intensity

↓ Carbon intensity (g CO_2-eq/kWh)

	2019	2020	2021	2022	2023	Change since 2022
Geothermal energy (Scope 1)	30	32	31	27	29	5%
Hydropower (Scope 1)	0.67	0.62	0.57	0.55	0.60	9%
Total emissions from electricity generation (S1)	2.9	2.9	2.8	2.8	3.0	5%
Other	0.56	0.47	0.39	0.31	0.37	19%
Carbon intensity	**3.5**	**3.3**	**3.2**	**3.1**	**3.3**	**7%**
Net carbon intensity	**1.2**	**0.87**	**0.76**	**0.75**	**0.92**	**22%**

Carbon intensity was 3.3 gCO_2-eq/kWh in 2023, an increase of 7% between years but still below the emission threshold of 4 gCO_2-eq/kWh defined in our climate and environmental policy.[1]

Emissions from geothermal electricity generation were 29 gCO_2-eq/kWh, a 5% yearly increase partly attributable to well discharge tests. Similarly, hydropower emissions were 0.6 g CO_2-eq/kWh, a rise of 9% due to extended ice-free periods on reservoirs compared to the preceding year. The European Union stipulates that electricity generation from hydropower and geothermal energy qualify as contribution to climate change mitigation, provided their emission levels remain below 100 gCO_2-eq/kWh.[2]

The net carbon intensity (emissions less carbon sequestration) was 0.9 gCO_2-eq/kWh, a 22% annual rise.

1 Landsvirkjun's Climate and Environmental Policy. Landsvirkjun, 2023.
2 Commission Delegated Regulation (EU) 2021/2139

Avoided Emissions

↓ Avoided emissions from Landsvirkjun's operations

	2021	2022	2023	Change since 2022
Energy sold (GWh)	14,052	14,629	14,686	0.4%
Benchmark factor (gCO_2-eq/kWh)	227	185	183	-1%
Direct emissions, Scope 1 (tCO_2-eq)	40,248	42,122	44,348	5%
Avoided emissions (tCO_2-eq)	**3,155,696**	**2,664,328**	**2,641,874**	**-0.8%**

Our electricity has a very low carbon footprint and prevents carbon emissions from the use of other energy sources with a larger carbon footprint. This reduction in emissions is crucial for our efforts to address climate change. Each year, in line with Landsvirkjun's green finance framework, we assess the climate impact or avoided emissions due to our eligible green assets. In 2023, our energy generation avoided around 2.6 million tonnes of CO_2, with a 1% decrease compared to the previous year. This decrease was influenced by the higher wholesale share in electricity sales in 2023. More information on calculation methods for avoided emissions can be accessed in the Green Finance Impact Report.[3]

GHG Emissions

↓ Emissions in Scope 1 separated by greenhouse gases (tonnes)

	Geothermal energy	Hydropower	Fossil fuel	Electrical equipment	Biodiesel	Total 2023
CO_2	34,938		326			**35,264**
CH_4	30	290	0.18			**320**
N_2O			3.7			**3.7**
SF_6				0.0056		**0.0056**
CH_4 and N_2O*					1.2	**1.2**

*A separate itemisation of CH_4 and N_2O from biodiesel combustion is unavailable. Emission factors in the Company's calculations do not provide such itemisation. These emissions are recorded as CO_2-eq.

3 Green Finance. Landsvirkjun, 2023.

Climate Accounting Methodology

Landsvirkjun is leading the way in climate action and actively participates in the international fight against climate change. We generate 100% renewable energy with a negligible carbon footprint. We will become carbon neutral in 2025 and work according to an ambitious action plan.[4] Our action plan is based on the detailed mapping of our carbon footprint. We are dedicated to knowing our emissions, monitoring our results, and providing information about our climate impact in a responsible manner.

Our real-time monitoring of GHG emissions from our operations enables us to make informed decisions, analyse the effectiveness of actions, and track our progress steadily throughout the year. We compile information about GHG emissions, sequestration, and our carbon footprint in our Climate Accounts, which detail emission sources, changes in emissions, and target progress.

We use the Greenhouse Gas Protocol (GHGP)[5] methodology for our Climate Accounts, the leading global corporate standard for reporting GHG emissions and carbon sequestration. Since 2018, our Climate Accounts have been audited and confirmed by an independent certification body, and Landsvirkjun was the first Icelandic company to be audited by an external certification body.

Climate accounting methodology and assumptions are discussed below.

Defining the Company´s impact

We include emissions from our operations and any emissions from our subsidiaries (such as Landsvirkjun Power and Icelandic Power Insurance). However, the accounts do not cover Landsvirkjun Power projects elsewhere in the world or businesses that Landsvirkjun owns shares in but does not directly control.

4 Landsvirkjun's Climate Action Plan. Landsvirkjun, 2023.
5 The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard Revised Edition. World Resources Institute og World Business Council for Sustainable Development, 2004.

Greenhouse gases in Landsvirkjun´s operations

Landsvirkjun's operations produce the greenhouse gases carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), as well as sulphur hexafluoride (SF_6).

CO_2	Carbon dioxide is emitted by burning fossil fuels, the decomposition of organic matter in reservoirs and is also a geothermal gas. GHG emissions are expressed in carbon dioxide equivalents (CO_2-eq).
CH_4	Methane is a greenhouse gas 28 times more potent than carbon dioxide, emitted by the decomposition of organic matter in reservoirs, landfills, and the burning of fossil fuels. It is also a geothermal gas.
N_2O	Nitrous oxide is a greenhouse gas 265 times more potent than carbon dioxide and is emitted by burning fossil fuels and using fertilisers.
SF_6	Sulphur hexafluoride (SF_6) is a manufactured gas used in Landsvirkjun's and Landsnet's operations to insulate electrical equipment. When it leaks, it can be released into the atmosphere. SF_6 is a greenhouse gas 23,500 times more potent than carbon dioxide.

Scope of operations

When we talk about the scope of the activity, we mean the definition of factors involved in the emission of greenhouse gases from our operations. These can be "direct emissions" (Scope 1) or "indirect emissions" (Scopes 2 and 3), according to the GHGP definition.

Scope 1 - emissions the Company is directly responsible for, i.e., emissions from operations under its control. Emission reduction measures such as eliminating fossil fuel consumption from operations would reduce these emissions.

Scope 2 - indirect GHG emissions from purchased electricity and heating consumption.

Scope 3—emissions not produced by the Company itself, i.e., from other products or services used by us or from waste disposal (waste). We can affect our use but cannot control how production, services, or disposal takes place. Scopes 2 and 3 emissions are from operations we do not directly manage. However, we can indirectly influence these emissions by choosing whom we do business with and requiring our suppliers and service providers to incorporate climate change measures.

According to the GHGP methodology, biogenic carbon dioxide emissions, such as those from biodiesel combustion, are considered outside scopes.

See figure on page 5 of Climate Accounts:
Emission sources in Landsvirkjun's operations classified according to scope

Reasons for categorisation
The disclosure of direct emissions (Scope 1) from the Company alone would only include emissions from geothermal energy generation, reservoirs, own fuel consumption, and SF_6 emissions from its electrical equipment. Our Climate Accounts would not include emissions from the value chain, and there would be no incentive to require contractors to minimise fuel consumption or buy fewer products with a high carbon footprint and we could reduce emissions by using rental cars instead of our own cars. The results would be misleading as our Climate Accounts would show lower emissions when actual emissions are more elevated.

Disclosing Scope 2 and 3 emissions gives us a clear picture of our total emissions, including our value chain. This motivates us to choose like-minded suppliers and encourages companies throughout our value chain to do better.

Verification
The international auditing firm Bureau Veritas has thoroughly reviewed and verified the GHG emissions from our operations since 2018 and our carbon sequestration measures since 2020. Emissions and carbon sequestration have been rigorously assessed and confirmed in accordance with the international standard ISO 14064-3, with limited assurance. This ensures that our reported results accurately reflect the emissions generated by our activities.

Bureau Veritas also reviewed and verified direct emissions (Scope 1) in 2008, in accordance with ISAE 3000, with limited assurance. The year 2008 is used as a reference point with which current emissions can be compared, and verification from Bureau Veritas confirms our reduced emissions.

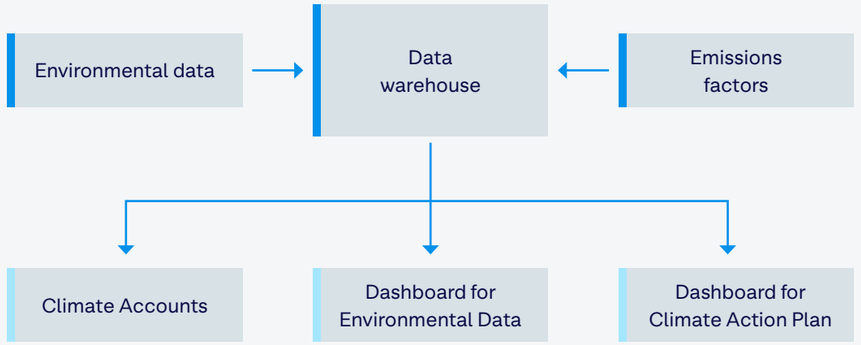
Further information on verifying Landsvirkjun´ s GHG emissions and carbon sequestration is provided in Bureau Veritas' Independent Limited Assurance Statement, which is included in our Climate Accounts.

Data Collection and Handling

As part of our climate accounting process, we follow a clearly defined procedure to ensure data quality. The data we use (environmental data and emission factors) are read into a database, a so-called data warehouse. This data is either read automatically from our accounting system and direct data from suppliers or manually recorded based on the obtained information. Climate accounting data and how it is obtained are detailed in the section Emissions calculated by source.

The data is published in an environmental data dashboard, where it can be accessed, and the progress of climate action and other environmental issues can be monitored in real time. We monitor the progress of our climate action plan goals using a climate dashboard accessed on our website.

↓ Model for Environmental Data



Carbon Footprint Calculations

Landsvirkjun's carbon footprint is total emissions from its operations, calculated using the GHGP methodology, less carbon sequestration from the Company's activities.

Carbon footprint = GHG emissions - carbon sequestration

We include biogenic CO_2 emissions in our total greenhouse gas emissions. The GHGP methodology categorises these emissions as outside of scope and, often, they are not included in company carbon footprints because they are not thought to increase the greenhouse effect overall. Our decision to include biogenic emissions in the carbon footprint is based on best practice standards in corporate carbon neutrality assessment.[6]

Emission factors can change between years with new information or methodology updates. We always use the most recent emission factors for our Climate Accounts. Whenever emission factors change, calculations from previous years are updated accordingly to ensure appropriate comparisons from year to year.

Emissions Calculations by Source

Geothermal energy
During geothermal heat extraction for electricity generation in high-temperature zones, geothermal fluid is extracted through wells from geothermal reservoirs around 2,000 meters below the surface. The geothermal fluid used in the process contains various gases, including the greenhouse gases carbon dioxide, originating from magma degassing, and methane. Both national and international studies have shown that carbon dioxide is naturally emitted from the soil in geothermal areas. The precise influence of geothermal energy generation on the natural release of greenhouse gases in these areas is still relatively unclear. Still, ongoing research at Landsvirkjun's production sites aims to provide more insight.

Emissions from geothermal power stations are calculated for each geothermal well. The wells are either active (in production) or idle. Chemical composition tests are carried out annually in each well to assess the concentration of GHGs in the geothermal fluid. Annual well testing is carried out using the tracer dilution method, and monthly tests are carried out to estimate well output and temperature. The results show the production capacity for each well. The concentration of GHGs in each well is multiplied by the total amount of steam and liquid released from each well to show the total emissions from geothermal energy generation. An appropriate emission factor is used to convert methane emissions into CO_2-eq. Emissions from geothermal production are direct emissions from our operations and fall under Scope 1.

↓ Emission factor for Methane

	Emission factor ($kgCO_2$-eq/kg)	Reference
Methane (CH_4)	28	IPCC, 2013[7]

6 Science Based Targets Initiative, Net-Zero Standard.

7 Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC, 2013.

Hydropower
Vegetation and soil are submerged when a reservoir is filled. These organic materials decompose and subsequently release the greenhouse gases carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions can vary between reservoirs, but the amount of vegetation and organic matter initially submerged significantly impacts emissions. Nitrous oxide emissions have not been detected in reservoirs in Iceland and are therefore not included in Landsvirkjun's Climate Accounts (the same is true for Iceland's National Inventory Report, NIR). We use the IPCC guidelines[8] to calculate GHG emissions from our hydropower station reservoirs, which are also used for Iceland´ s NIR.

Carbon dioxide is usually not emitted from reservoirs when an ice layer covers them because the water temperature is too low for microorganism activity, and gas formation is negligible. Ice cover and ice-free days are monitored at the Blanda and Fljótsdalur Reservoirs. Ice-free days are not recorded in reservoirs, where less organic matter was submerged during filling. The estimated number of ice-free days in these reservoirs is 215. CO_2 and methane emissions from reservoirs are calculated using specific emission factors compiled by experts at the Icelandic University of Agriculture based on several studies and peer-reviewed articles.

No conclusive evidence exists on how much biogenic carbon is released into the atmosphere or how much is bound in reservoirs. Therefore, these emissions are registered as atmospheric emissions until more data becomes available.

In 2019, the IPCC issued updated guidelines for assessing reservoir emissions. According to these guidelines, the breakdown of organic matter slows over time and typically ceases after 20 years (or even earlier). After the first 20 years, the release of carbon dioxide from reservoirs can largely be attributed to organic matter from the water catchment area. These emissions are classified as part of emissions in other land use categories rather than reservoir emissions, and thus, carbon dioxide emissions from reservoirs older than 20 years are not considered relevant. This year, we disclosed reservoir emissions for the first time following the updated IPCC guidelines and have revised our calculations accordingly. As a result, reservoir emissions are significantly lower than what was previously reported in the 2022 Climate Accounts.

According to the GHGP methodology, the release of methane from reservoirs falls under Scope 1. In contrast, the release of carbon dioxide is considered outside of scopes because vegetation (during growth) binds as much carbon dioxide as it releases during decomposition.

8 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4. IPCC, 2006.

↓ Emission factors for reservoirs

Reservoirs	Year formed	CO_2 Ice-free ($kgCO_2/ha*d$)*	CH_4 Ice ($kgCO_2/ha*d$)	CH_4 Ice-free ($kgCH_4/ha*d$)	CH_4 Ice ($kgCH_4/ha*d$)
Þórisvatnsmiðlun	1972	0.162	0	0.0065	0.000051
Sauðafellslón	1972	0.162	0	0.0065	0.000051
Krókslón	1977	0.230	0	0.0092	0
Hrauneyjalón	1981	0.106	0	0.0042	0
Bjarnalón	1969	0.076	0	0.0030	0
Blöndulón	1991	4.67	0	0.187	0.0040
Blöndulón, stækkun	1996	4.67	0	0.187	0.0040
Gilsárlón	1991	12.9	0	0.524	0.012
Hágöngumiðlun	1998	0.162	0	0.0065	0.000052
Kvíslavatn 1	1985	0.162	0	0.0065	0.000052
Kvíslavatn 2	1985	2.11	0	0.085	0.0018
Dratthalavatn 1	1985	0.162	0	0.0065	0.000052
Dratthalavatn 2	1985	2.11	0	0.085	0.0018
Eyvindarlón	1985	0.162	0	0.0065	0.000052
Hreysislón	1985	0.162	0	0.0065	0.000052
Þjórsárlón	1996	0.162	0	0.0065	0.000052
Sultartangalón	1984	0.083	0	0.0033	0
Hálslón	2007	0.392	0	0.016	0.00036
Ufsarlón	2009	0.902	0	0.036	0.00080
Kelduárlón	2009	0.770	0	0.031	0.00071
Grjótárlón	2009	0.247	0	0.0099	0
Vatnsfellsveita	2001	0	0	0	0
Sporðöldulón 1	2013	0.162	0	0.0065	0.000052
Sporðöldulón 2	2013	2.11	0	0.085	0.0018

*For reservoirs over 20 years of age, the CO_2 emission factor on ice-free days is 0.

Fuel consumption

We use fuel for our vehicles and other equipment, power generators, backup power generators, and rental cars. GHGs are emitted from burning fossil fuels (Scope 1) and during the production and transportation of fuel (Scope 3). We keep a detailed record of our fuel consumption and purchases. Emissions are calculated per litre of fuel based on relevant emission factors. Emissions from each vehicle and all mechanical equipment are calculated.

Emission factors for fuel consumption ($kgCO_2$-eq/l)

Fuel type	Scope	Emission factor ($kgCO_2$-eq/l)	Reference
Diesel	1	2.72	UST, 2024[9]
Diesel	3	0.624	DEFRA, 2023[10]
Petrol	1	2.34	UST, 2024[9]
Petrol	3	0.607	DEFRA, 2023[10]
Biodiesel (HVO)	1	0.0356	DEFRA 2023[10]
Biodiesel (HVO)	3	0.278	DEFRA, 2023[10]
Biodiesel (HVO)	Outside Scopes	2.43	DEFRA, 2023[10]
Hydrogen	3	1.78	Zhao o.fl., 2018[11]

Emission factors for fuel consumption by gas type

Gas type	Diesel	Petrol	Biodiesel	Reference
Carbon dioxide ($kgCO_2$/l)	2.63	2.33	2.43	DEFRA, 2023[10]
Methane ($kgCH_4$/l)	0.00029	0.00820	-	DEFRA, 2023[10]
Nitrous oxide (kgN_2O/l)	0.0331	0.00597	-	DEFRA, 2023[10]
Methane and nitrous oxide ($kgCO_2$-eq/l)	-	-	0.0356	DEFRA, 2023[10]

Emission factors from DEFRA do not differentiate between methane and nitrous oxide emissions from biodiesel combustion, which is why these emissions are expressed in CO_2 equivalents.

Emissions from fossil fuel combustion are included in Scope 1. Emissions of methane and nitrous oxide from biodiesel combustion are included in Scope 1, but emissions of CO_2 are outside Scopes. Emissions from the production and transportation of all fuel types are included in Scope 3.

9 Emission Factors, 6th Edition. Environment Agency of Iceland, 2024.
10 Greenhouse gas reporting: conversion factors 2023. DEFRA, 2023.
11 Zhao, Pedersen. Life Cycle Assessment of Hydrogen Production and Consumption in an Isolated Territory. Procedia CIRP, 69, 529-533, 2018.

Electrical equipment

Sulphur hexafluoride (SF_6) is used as an insulator and must be added to electrical equipment every few years because SF_6 slowly leaks from equipment. The supply and status of SF_6 refilling are monitored to provide an overview of emissions from SF_6 leakages. The appropriate emissions factor is used to convert emissions into CO_2 eq. SF_6 leakage emissions are included in Scope 1.

Emission factor for SF_6

	Emission factor ($kgCO_2$-eq/kg)	Reference
Sulphur hexafluoride (SF_6)	23,500	IPCC, 2013[12]

Purchased electricity & heating

Electricity and heating emissions from the Company's operations are calculated based on invoiced amounts for purchased electricity and heating. This is done by multiplying the amount of electricity and hot water with the appropriate emission factors.

As per the GHGP guidelines, companies must disclose emissions from purchased electricity through location-based and market-based methods. Location-based emissions stem from the average emissions during electricity generation within the Icelandic grid, determined using the Environment Agency's emission factor. On the other hand, market-based emissions consider the electricity's origin. For our operations, we cancel guarantees of origin equal to our annual purchases, using the emission factor for our electricity generation in emission calculations.

The Environment Agency has revised its methodology for calculating emission factors related to electricity and hot water production. Previously, all geothermal power station emissions were attributed to electricity generation, with geothermal water assigned a zero emission factor. The current approach distributes emissions between electricity and hot water production, reflecting this division in our newly presented emissions breakdown. Calculations for previous years' emissions have been adjusted accordingly. These emissions fall under Scope 2.

Emission factors for electricity & heating

	Emission factor (gCO_2-eq/kWh)	Reference
Electricity, location-based (gCO_2-eq/kWh)	8.54	UST, 2024[9]
Electricity, market-based (gCO_2-eq/kWh)	3.3	Landsvirkjun, 2023[13]
Hot water (gCO_2-eq/m^3)	434	UST, 2024[9]

The Climate Accounts for 2023 used emissions factors for electricity and hot water from 2022, as the Environment Agency of Iceland has not updated emissions factors for 2023.

12 Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC, 2013.
13 Climate Accounts 2023. Landsvirkjun, 2023.

Waste

Waste generated from company operations is categorised, and its quantity is recorded. Information on waste quantities is obtained from invoices or data connections with service providers. Information on waste disposal is acquired from suppliers. Emissions resulting from waste treatment are calculated by multiplying the amount of waste with appropriate emission factors. These emissions fall under Scope 3.

In 2023, we obtained more detailed information regarding the waste disposal pathways from the waste disposal parties. As a result, we recalculated emissions for previous years in alignment with this data, leading to reduced emissions from waste treatment compared to what was reported in the 2022 Climate Accounts.

↓ Emission factors for waste

Waste category	Mode of disposal	Emission factor ($kgCO_2$-eq/t)	Reference
General unsorted waste	Landfill	1,104	UST, 2024[14]
	Incineration without energy production	21.3	DEFRA, 2023[15]
Bulky waste	Landfill	520	DEFRA, 2023[15]
Inert waste (glass, soil & minerals)	Landfill	1.23	DEFRA, 2023[15]
	Reuse	0	DEFRA, 2023[15]
Organic waste	Aerobic compost	176	UST, 2024[14]
	Anaerobic compost	27	UST, 2024[14]
Metals and scrap metal	Recycling	21.3	DEFRA, 2023[15]
	Reuse	0	DEFRA, 2023[15]
Paper	Recycling	21.3	DEFRA, 2023[15]
Plastic	Recycling	21.3	DEFRA, 2023[15]
Hazardous waste	Incineration without energy generation	21.3	DEFRA, 2023[15]
	Recycling	21.3	DEFRA, 2023[15]
	Reuse	0	DEFRA, 2023[15]
Timber	Recycling	21.3	DEFRA, 2023[15]
	Reuse	0	DEFRA, 2023[15]

14 Emission Factors, 6th Edition. Environment Agency of Iceland, 2024.
15 Greenhouse gas reporting: conversion factors 2023. DEFRA, 2023.
16 ICAO Carbon Emissions Calculator. ICAO, 2023.

Employee air travel

Our domestic flight emissions are calculated based on emission factors prepared by a consultant and a study on aircraft emissions. Air travel emissions are measured using seat kilometres, which vary depending on the length of the flight and the type of aircraft; short flights with fewer passengers produce higher emissions per seat kilometre than flights with a higher number of passengers travelling longer journeys. The effect of distance on emissions per seat kilometre is explained by the increase in emissions during take-off and landing. These emissions are not dependent on flight distance.

Emissions from international flights are automatically included in invoices from our travel agency and are based on the ICAO carbon calculator.[16]

Emissions from employee air travel fall under Scope 3.

Employee commuting

Employee commuting GHG emissions are estimated through a survey on commuting habits sent to all employees annually. Employees are asked how they commute, how far, and how often they work from home. Annual commuting trips are calculated by subtracting the number of working days from home and the average number of holidays and sick days from the total number of working days each year. Emissions are calculated by multiplying the trips by the distance between home and the workplace and the appropriate emissions factor. The average emissions of survey participants are multiplied by the total number of full-time employees at the Company. Emissions from employee commuting fall under Scope 3.

Some of our employees commute using company cars. These emissions are accounted for in emissions from fuel consumption that fall under Scope 1.

↓ Emission factors for employee commuting

Transportation	Emission factors (gCO_2-eq/km)	Reference
Private vehicle – electric	1.6	UST, 2024[14]
Private vehicle – petrol	207	UST, 2024[14]
Private vehicle – diesel	188	UST, 2024[14]
Private vehicle – hybrid	137	UST, 2024[14]
Private vehicle – methane	2.6	UST, 2024[14]
Motorbike	67	UST, 2024[14]
Bus*	51.3	-

*Emission factors from bus travel are estimated from accurate figures on fuel consumption and the distance driven by the bus, as reported by Strætó in its annual report 2022. Landsvirkjun assumes an average of 20 passengers per trip.

Fertiliser
Landsvirkjun purchases inorganic fertiliser for land reclamation use, afforestation, fields and gardens, and general maintenance in areas surrounding our power stations. We record our purchases and our project partners' fertiliser use in collaborative projects. Emissions are based on production, transport, and soil release. When purchasing fertiliser, we ask about the GHG emissions related to its production, transport, and use. If information from the fertiliser manufacturer is unavailable, average emission factors based on emission factors from the Ecoinvent database 3.5, World Food LCA, and the Environment Agency of Iceland are used. Emissions from fertiliser fall under Scope 3.

↓ Emission factors for fertiliser

	Emission factor	Reference
Production N (kg CO_2-eq/kg N)	3.7	Yara
Production NPK 12-4-18 (kg CO_2-eq/kg fertiliser)	0.525	Yara
Production NPK 27-3-3 (kg CO_2-eq/kg fertiliser)	1.01	Yara
Production NPK 22-6-6 (kg CO_2-eq/kg fertiliser)	0.81	Yara
Production NP 26-4 (kg CO_2-eq/kg fertiliser)	0.973	Yara
Production N, average (kg CO_2-eq/kg N)	3.88	World Food LCA
Production K, average (kg CO_2-eq/kg K2O)	0.358	Ecoinvent database 3.5
Production P, average (kg CO_2-eq/kg P2O5)	1.86	Ecoinvent database 3.5
Soil emissions NP 26-4 (kg CO_2-eq/kg fertiliser)	1.46	Yara
Soil emissions NPK 12-4-18 (kg CO_2-eq/kg fertiliser)	0.67	Yara
Soil emissions NPK 27-3-3 (kg CO_2-eq/kg fertiliser)	1.51	Yara
Soil emissions NPK 22-6-6 (kg CO_2-eq/kg fertiliser)	1.23	Yara
Soil emissions, average (kg CO_2-eq/kg N)	4.16	UST, 2024[17]
Transport by land, average (kg CO_2-eq/kg fertiliser)	0.02	SCSI, 2021
Transport by sea, average (kg CO_2-eq/kg fertiliser)	0.07	SCSI, 2021
Transport by sea, average (kg CO_2-eq/kg*km)	0.000011	Ecoinvent database 3.5

17 Emission Factors, 6th Edition. Environment Agency of Iceland, 2024.

Electricity transmission
Sulphur hexafluoride (SF_6) is used for insulation at Landsnet´ s substations. Reports on SF_6 leakages in Landsnet´ s operations are requested annually. Landsvirkjun´ s emissions from electricity distribution are calculated by multiplying Landsnet´ s total SF_6 emissions with Landvirkjun´ s portion of transmitted electricity within Landsnet´ s transmission system. The appropriate emission factor is used to convert emissions into CO_2-eq. Emissions from electricity distribution fall under Scope 3.

↓ Emission factor for SF_6

	Emission factor ($kgCO_2$-eq/kg)	Reference
Sulphur hexafluoride (SF_6)	23,500	IPCC, 2013[18]

Construction
Contractors involved in all large-scale groundwork projects on our behalf must report data concerning the volume of waste generated and fuel consumption. Additionally, we seek information on the quantity and carbon footprint of steel and cement used in these projects. Emissions are calculated by multiplying the quantities of waste, fuel, steel, and cement by the relevant emission factors. We use the same emission factors for fuel and waste from projects and our operations. Whenever possible, we rely on emission factors provided by steel and cement manufacturers. In instances where such data is unavailable, average emission factors are employed. Emissions from construction fall under Scope 3.

↓ Emission factors for steel and cement

	Emission factor ($kgCO_2$-eq/kg)	Reference
Steel, average	2.32	World Steel Association, 2022[19]
Cement	0.711	Norcem

18 Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC, 2013.
19 Sustainability performance of the steel industry 2003-2021. World Steel Association, 2022.

Carbon Sequestration Calculations

Carbon sequestration activities are evaluated in regions where land reclamation, afforestation, and wetland restoration initiatives are conducted either independently by us or in partnership with others. These efforts include mitigation strategies linked to construction, land improvements near the Company's power stations, and projects aimed at sequestering carbon within soil and vegetation.

Land and Forest, formerly known as the Soil Conservation Service and Forest Service, assesses carbon sequestration from land reclamation and forestry activities as the basis for climate accounting. Carbon sequestration on forestry lands owned by Landsvirkjun was evaluated in 2021, with the initial assessment dating back to 2011. The first evaluation of carbon sequestration on land reclamation sites also took place in 2011 and was updated in 2016. While the results have not been publicly disclosed, efforts are being made to update the evaluation. As per recommendation, wetland restoration to decrease carbon emissions is expected to reduce 20 tonnes of CO_2 equivalents per hectare annually. Land and Forest adhere to the IPCC methodology.[20]

Land reclamation projects carried out as carbon sequestration measures are located at Rangárvellir and Hólasandur. Similar afforestation projects are located at Eiðsstaðir, close to the Blanda Hydropower Station, in Belgsá in Fnjóskadalur, in Laxaborg in Haukadalur, in Skarfanes in Landsveit, and Skálmholtshraun in Flóahreppur. Wetlands have also been restored in Sogn in Ölfus and Ytri-Hraundalur in Mýrar and Skálholt. Other projects have been carried out with landowners and relevant professionals, such as Land and Forest and various afforestation associations.

↓ A map of Landsvirkjun's sequestration projects

20 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands. IPCC, 2014.

External Certification

Independent Limited Assurance Statement

Introduction and Objectives of Work
Bureau Veritas UK Limited (Bureau Veritas) has been engaged by Landsvirkjun (Landsvirkjun) to provide Limited Assurance of its selected sustainability performance indicators for inclusion in the Climate Accounts 2023 Report (the 'Report'). The objective is to provide assurance to Landsvirkjun and its stakeholders over the accuracy and reliability of the Selected Information and data.

Scope of Work
The scope of our work was limited to assurance over the following information included within the Report for the period 1st January to 31st December 2023 (the 'Selected Information'):

- Direct (Scope 1) GHG Emissions (tCO_2e)
- Indirect (Scope 2) GHG Emissions (location and market-based) (tCO_2e)
- Selected Other Indirect (Scope 3) emissions (tCO_2e)
  - Category 1 - Purchased goods and services
  - Category 3 - Fuel and energy related activities
  - Category 5 - Waste generated in operations
  - Category 6 - Business travel
  - Category 7 - Employee commuting
  - Category 8 - Downstream transportation and distribution
- Out of scope GHG Emissions
- Performance compared to 2022 as a percentage change

Reporting criteria
The Selected Information needs to be read and understood together with the basis of reporting in the Climate Accounts 2023 Report, as set out at www.landsvirkjun.com/climate-action/climate-accounts

Limitations and Exclusions
Excluded from the scope of our work is assurance of information relating to:

- Activities outside the defined assurance period;
- Positional statements of a descriptive or interpretative nature, or of opinion, belief, aspiration or commitment to undertake future actions; and
- Other information included in the Report other than the Selected Information.

The following limitations should be noted:

- This Limited Assurance engagement relies on a risk based selected sample of sustainability data and the associated limitations that this entails.
- The reliability of the reported data is dependent on the accuracy of metering and other production measurement arrangements employed at site level, not addressed as part of this assurance.
- This independent statement should not be relied upon to detect all errors, omissions or misstatements that may exist.

Responsibilities
This preparation and presentation of the Selected Information in the Report are the sole responsibility of the management of Landsvirkjun.

Bureau Veritas was not involved in the drafting of the Report or of the Reporting Criteria. Our responsibilities were to:

- Obtain limited assurance about whether the Selected Information has been prepared in accordance with the Reporting Criteria;
- Form an independent conclusion based on the assurance procedures performed and evidence obtained; and
- Report our conclusions to the Directors of Landsvirkjun.

Assessment Standard
We performed our work to a limited level of assurance in accordance with ISO 14064-3: 2019 Greenhouse gases – Part 3: Specification with guidance for the verification and validation of greenhouse gas statements.

Summary of work performed
As part of our independent assurance, our work included:

1 Conducting interviews with relevant personnel of Landsvirkjun – 13 data owners were interviewed;

2 Reviewing the data collection and consolidation processes used to compile Selected Information, including assessing assumptions made, and the data scope and eporting boundaries;

3 Reviewing documentary evidence provided by Landsvirkjun;

4 Agreeing a selection of the Selected Information to the corresponding source documentation;

5 Reviewing Landsvirkjun systems for quantitative data aggregation and analysis;

6 Assessing the disclosure and presentation of the Selected Information to ensure consistency with assured information.

7 Reperforming a selection of aggregation calculations of the Selected Information.

8 Reperforming greenhouse gas emissions conversions calculations.

9 Comparing the Selected Information to the prior year amounts taking into consideration changes in business activities, acquisitions and disposals.

10 Evaluating the design of internal systems, processes and controls to collect and report the Selected Information.

A 5% materiality threshold was applied to this assurance. It should be noted that the procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Conclusion
On the basis of our methodology and the activities and limitations described above nothing has come to our attention to indicate that the Selected Information is not fairly stated in all material respects.

Verified GHG Emissions

Direct Scope 1 Emissions:	**Indirect Scope 2 Emissions:**	**Selected Other Indirect Scope 3:**	**Out of Scope:**
Total: 44,348 tonnes of CO_2e	Total: 25.8 tonnes of CO_2e	Total: 4,229 tonnes of CO_2e	Total: 709 tonnes CO_2
Geothermal: 35,767 tonnes of CO_2e Hydropower reservoirs: 8,111 CH_4 Fuel (for vehicles, machinery, and equipment): 338 tonnes of CO_2e SF_6: 132 tonnes of CO_2e	Purchased electricity (location-based): 6.3 tonnes of CO_2e Purchased electricity (market-based): 2.2 tonnes of CO_2e Purchased heating: 19.5 tonnes of CO_2e	Waste: 44 tonnes of CO_2e Employee Air Travel: 258 tonnes of CO_2e Commuting: 94 tonnes of CO_2e Fertilisers: 1,186 tonnes of CO_2e Construction (Fuel, Waste, Steel & Cement): 1,335 tonnes of CO_2e Fuel: 161 tonnes of CO_2e SF_6 (Electricity Transmission): 1,151 tonnes of CO_2e	Biogenic emissions from hydropower reservoirs: 624 tonnes CO_2 Emissions from biodiesel combustion: 85 tonnes CO_2

Statement of Independence, Integrity and Competence
Bureau Veritas is an independent professional services company that specialises in quality, environmental, health, safety and social accountability with over 190 years history. Its assurance team has extensive experience in conducting verification over environmental, social, ethical and health and safety information, systems and processes.

Bureau Veritas operates a certified[21] Quality Management System which complies with the requirements of ISO 9001:2015, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, quality reviews and applicable legal and regulatory requirements which we consider to be equivalent to ISQM 1 & 2.[22]

Bureau Veritas has implemented and applies a Code of Ethics, which meets the requirements of the International Federation of Inspections Agencies (IFIA)[23], across the business to ensure that its employees maintain integrity, objectivity, professional competence and due care, confidentiality, professional behaviour and high ethical standards in their day-to-day business activities. We consider this to be equivalent to the requirements of the IESBA code.[24] The assurance team for this work does not have any involvement in any other Bureau Veritas projects with Landsvirkjun.

Bureau Veritas UK Limited
London
20th February, 2024

21 Certificate available on request
22 International Standard on Quality Management 1 (Previously International Standard on Quality Control 1) & International Standard on Quality Management 2
23 International Federation of Inspection Agencies – Compliance Code – Third Edition
24 Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants

Independent Assurance Report

Introduction and objectives of work
Bureau Veritas UK Limited ('Bureau Veritas') has been engaged by Landsvirkjun to provide Limited Assurance of its selected sustainability performance indicators for inclusion in its Climate Accounts 2023 Report and Carbon Sequestration (the 'Report'). The objective is to provide assurance to Landsvirkjun and its stakeholders over the accuracy and reliability of the Selected Information.

Scope of Work
The scope of our work was limited to assurance over the following information included within the Report for the period January 1st to December 31st 2023 (the 'Selected Information'):

Carbon Sequestration Projects

Land reclamation

- Auðkúluheiði
- Eyvindarstaðaheiði
- Bolholt
- Hólasandur
- Fljótsdalsstöð (Hraunasvæði, Hálslón, Húsey)
- Landbótasjóður Norður-Héraðs
- Kot-Steinkross
- Krákárbotnar og Katlar
- Víkingslækur
- Hrútatorfur
- Sporöldulón

Reforestation

- Blöndustöð
- Laxárstöð
- Belgsá
- Laxaborg
- Skarfanes
- Skálmholtshraun
- Kaldárhöfði
- Sogsstöðvar
- Búrfell
- Búrfellsstöð
- Bjarnalón

Wetland reclamation

- Skálholt
- Sogn
- Ytri Hraundalur

Reporting criteria
For the Carbon Sequestration, the Selected Information has been prepared in accordance with internal definitions and methodologies developed by Landsvirkjun with reference to relevant external guidelines, models and tools for carbon sequestration accounting, such as the 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands and the IPCC Good Practice Guidance for Land Use[25] and the IPCC Guidance for Land Use Change and Forestry.[26]

Limitations and Exclusions
Excluded from the scope of our work is assurance of information relating to:

- Activities outside the defined assurance period;
- Positional statements of a descriptive or interpretative nature, or of opinion, belief, aspiration or commitment to undertake future actions;
- Other information included in the Report outside the selected information; and

For the carbon sequestration review, Bureau Veritas relied on information relayed by third parties to Landsvirkjun, this includes information from the following:

- Land reclamation areas and carbon sequestration provided is based on data from 2019 provided by the Soil Conservation Service (SCS) to the Company.
- Growth rate projections of reforestation areas per year, provided by the following study commissioned by the Company to the Icelandic Forest Service experts: 'Úttekt á kolefnisbindingu skógræktar Landsvirkjunar 2021, LV-2022-035'.
- Carbon sequestration factor used for wetlands, provided by the Soil Conservation Service (SCS) to the company, and based on IPCC's factors for rich boreal grassland and rewetted area: 'Endurheimt votlendis á tveimur jörðum og vöktun á árangri, LV-2022-036'.

25 2013 Supplement to the 2006 IPCC Guidelines. IPCC, 2014.
26 Good Practice Guidance for Land Use, Land-Use Change and Forestry. IPCC, 2003.

Moreover, excluded from our scope of work and conclusion is:
- The appropriateness of the Reporting Criteria for the Selected Information;
- Any calculation input data provided by third parties, together with any potential errors, discrepancies or gaps identified in this input data by Bureau Veritas raised during the course of the engagement;

The following limitations should be noted:
- This limited assurance engagement relies on a risk based selected sample of sustainability data and the associated limitations that this entails.
- This independent statement should not be relied upon to detect all errors, omissions or misstatements that may exist.

Responsibilities
This preparation and presentation of the Selected Information in the Report are the sole responsibility of the management of Landsvirkjun.

Bureau Veritas was not involved in the drafting of the Report or of the Reporting Criteria. Our responsibilities were to:

- obtain limited assurance about whether the Selected Information has been prepared in accordance with the Reporting Criteria;
- form an independent conclusion based on the assurance procedures performed and evidence obtained; and
- report our conclusions to the Directors of Landsvirkjun

Assessment Standard
We performed our work to a limited level of assurance in accordance with the ISO 14064- 3:2019, Greenhouse gases - Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions.

Summary of work performed
As part of our independent assurance, our work included:

1. Conducting interviews with relevant personnel of Landsvirkjun;
2. Reviewing the data collection and consolidation processes used to compile Selected Information, including assessing assumptions made, and the data scope and reporting boundaries;
3. Reviewing documentary evidence provided by Landsvirkjun;
4. Agreeing a selection of the Selected Information to the corresponding source documentation;
5. Reviewing Landsvirkjun systems for quantitative data aggregation and analysis;
6. Assessing the disclosure and presentation of the Selected Information to ensure consistency with assured information.
7. Comparing the Selected Information to the prior year amounts

A 5% materiality threshold was applied to this assurance. It should be noted that the procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Conclusion
On the basis of our methodology and the activities and limitations described above nothing has come to our attention to indicate that the Selected Information is not fairly stated in all material respects.

Verified Carbon Sequestered

Landsvirkjun total Carbon Sequestration in 2023: 35,794 tonnes of CO_2e.

Statement of Independence, Integrity and Competence
Bureau Veritas is an independent professional services company that specialises in quality, environmental, health, safety and social accountability with over 190 years history.
Its assurance team has extensive experience in conducting verification over environmental, social, ethical and health and safety information, systems and processes.

Bureau Veritas operates a certified[27] Quality Management System which complies with the requirements of ISO 9001:2015, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, quality reviews and applicable legal and regulatory requirements which we consider to be equivalent to ISQM 1 & 2.[28]

Bureau Veritas has implemented and applies a Code of Ethics, which meets the requirements of the International Federation of Inspections Agencies (IFIA)[29], across the business to ensure that its employees maintain integrity, objectivity, professional competence and due care, confidentiality, professional behaviour and high ethical standards in their day-to-day business activities. We consider this to be equivalent to the requirements of the IESBA code.[30] The assurance team for this work does not have any involvement in any other Bureau Veritas projects with Landsvirkjun.

Bureau Veritas UK Limited
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20th February, 2024

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