



The Semi-Annual Climate Account

Landsvirkjun's Semi-Annual Climate Account for the first half of 2023 shows that greenhouse gas emissions from the Company's operations were approximately 20,700 tonnes CO₂e, a 12% reduction year on year. Landsvirkjun's carbon sequestration was close to 17,900 tonnes CO₂e for the same period, an increase of 2% year on year. The Company's carbon footprint, i.e., the total greenhouse gas emissions minus carbon sequestration, was approximately 2,800 tonnes CO₂e, a reduction of 54% year on year.

The reduction in greenhouse gas emissions is mainly due to lower emissions from the Company's geothermal stations, as emissions from geothermal stations are the single largest source of emissions in Landsvirkjun's operations. Emissions from electricity generation from geothermal stations were reduced by 23% year on year, primarily due to reduced electricity generation at Krafla Power Station compared to the first half of 2022. Carbon intensity from geothermal energy generation was 23 gCO₂e/kWh, a reduction of 18% year on year. Favourable reservoir levels at hydropower stations led to increased electricity generation from hydropower compared to the first half of 2022. Emissions from reservoirs increased by 25% year on year, but these emissions are controlled by the number of days the reservoirs are frozen. Emissions from fossil fuel combustion were reduced by 18% year on year because of Landsvirkjun's systematic approach to replacing the Company's diesel or petrol vehicles and equipment with new ones fuelled with clean energy.

Total carbon intensity for the first half of 2023 was 2.8 gCO₂e/kWh, a reduction of 15% year on year. Net carbon intensity was 0.38 gCO₂e/kWh, a decrease of 55% year on year. Avoided emissions from Landsvirkjun's electricity generation were 1.3 million tonnes of CO₂e, a reduction of 17% year on year. The decrease can be attributed to decreased benchmark factors.

↓ Key Figures

Carbon footprint

2,785 tCO₂e ↓54%

Net carbon intensity

0.38 gCO₂e/kWh ↓55%

GHG emissions

20,682 tCO₂e ↓12%

Carbon intensity

2.8 gCO₂e/kWh ↓15%

Carbon sequestration

17,897 tCO₂e ↑2%

Carbon intensity of electricity generation

2.2 gCO₂e/kWh ↓21%

Energy generation

7,404 GWh ↑3%

Avoided GHG emissions

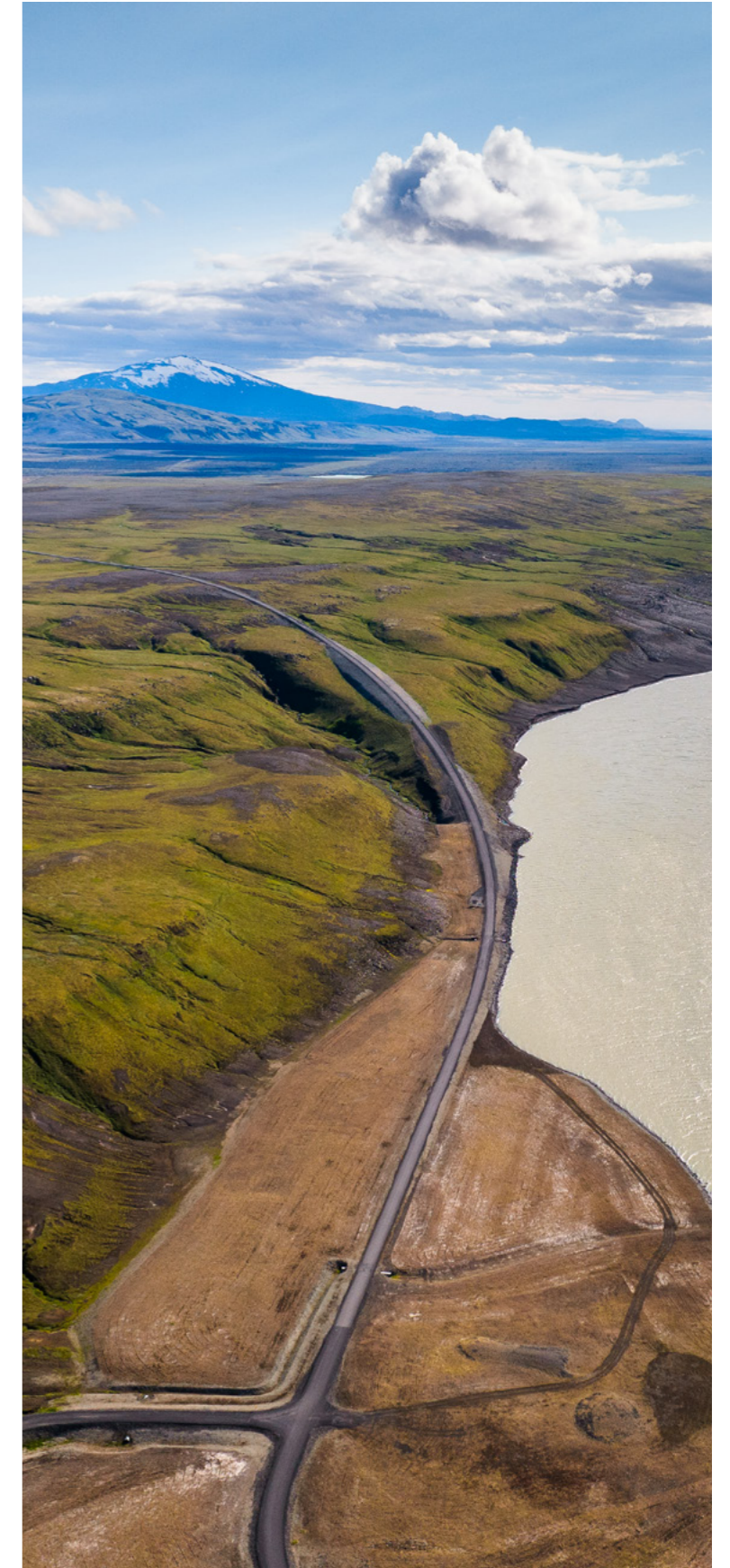
1,332,743 tCO₂e ↓17%





↓ The Carbon Footprint in the First Half of 2023

Scope 1 (tCO ₂ e)	2019	2020	2021	2022	2023	Change from 2022
Geothermal energy	16,118	15,326	15,774	17,977	13,803	-23%
Reservoirs (CH ₄)	2,896	1,836	1,744	1,892	2,359	25%
Fuel combustion	216	176	191	185	151	-18%
Electrical equipment	16	0	15	52	20	-61%
Total Scope 1	19,246	17,338	17,725	20,106	16,333	-19%
Scope 2 (tCO₂e)						
Purchased electricity and heating*	4.2	5.7	4.5	5.2	5.7	9.6%
Total Scope 2	4.2	5.7	4.5	5.2	5.7	9.6%
Scope 3 (tCO₂e)						
Fertiliser	479	619	684	854	881	3.2%
Fuel	96	73	75	79	78	-1.7%
Employee commute	47	35	54	48	48	0%
International air travel	158	24	0	33	51	53%
Domestic air travel	80	29	30	49	78	58%
Construction	1,638	211	165	47	366	679%
Electricity transmission	717	1,131	964	759	759	0%
Waste	14	22	30	42	45	6.6%
Total Scope 3	3,229	2,143	2,002	1,912	2,306	21%
Outside of Scopes (tCO₂e)						
Reservoirs (CO ₂)	2,479	1,514	1,431	1,566	1,991	27%
Biodiesel combustion (CO ₂)	22	16	27	36	46	26%
Total Outside of Scopes	2,501	1,529	1,459	1,602	2,036	27%
Total emissions (tCO₂e)	24,979	21,016	21,190	23,626	20,682	-12%
Carbon sequestration (tCO₂e)	-15,950	-16,500	-17,200	-17,576	-17,897	1.8%
Carbon footprint (tCO₂e)	9,029	4,516	3,990	6,050	2,785	-54%
*Emissions from purchased electricity and heating are same for location-based and market-based.						
Energy generation (GWh)						
Geothermal energy	536	572	467	642	598	-6.8%
Hydropower	6,628	6,246	6,388	6,557	6,803	3.8%
Wind power	3.3	3.7	3.2	2.9	3.3	13%
Total energy generation	7,167	6,822	6,857	7,201	7,404	2.8%
Carbon intensity (gCO₂e / kWh)						
Geothermal energy (Scope 1)	30	27	34	28	23	-18%
Hydropower (Scope 1)	0.44	0.29	0.27	0.29	0.35	20%
Carbon intensity of electricity generation (S1)	2.7	2.5	2.6	2.8	2.2	-21%
Other emissions	0.49	0.34	0.33	0.30	0.34	12%
Carbon intensity (gCO₂e/kWh)	3.5	3.1	3.1	3.3	2.8	-15%
Net carbon intensity (gCO₂e/kWh)	1.3	0.66	0.58	0.84	0.38	-55%





The Semi-Annual Climate Account Methodology

The Semi-Annual Climate Account is a disclosure of Landsvirkjun's progress in executing its Climate Action Plan. Furthermore, it analyses how the Company is advancing towards ambitious goals for carbon neutrality and reducing emissions. Landsvirkjun's Semi-Annual Climate Account provides insights into annual emissions, calculated at year-end, inspected and verified by an independent certification body, and published in Landsvirkjun's Annual Climate Account.

Landsvirkjun's Climate Account is based on the Greenhouse Gas Protocol (GHGP) methodology, a leading global company standard for disclosure of greenhouse gas emissions. Information on Landsvirkjun's GHG emissions is streamed on the Company's climate dashboard and is inspected and reviewed after each quarter.

Further information on the methodology can be found in the [Climate Account 2022](#). Emissions items such as *Electricity transmission* and *Employee commute* are unavailable until year-end. The Semi-Annual Climate Account assumes half of last year's emissions for these items. [The Icelandic Environment Agency, DEFRA](#), and the National Inventory Report issue the emissions factors applied and are part of the annual verification by an external certification body.

The annual estimate of avoided emissions due to Landsvirkjun's electricity generation is part of the Company's disclosure of green financing. The estimation for avoided emissions is based on benchmark factors issued by the International Financial Institution (IFI) and the division of electricity sales to large end-users and wholesale for the first half of 2023. The benchmark is 185 gCO_{2e}/kWh. [See the Annual Green Finance Impact Report for further information about the computing methodology.](#)



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