

Climate Audit

SignMax

Financial year 2022-2023

In collaboration with

ATMOZ

CONTENTS

- Introduction 1
- Method..... 1
 - GHG Protocol..... 1
 - Scope..... 1
 - Consolidation Approach 2
 - Method Scope 2..... 2
 - Base Year..... 2
 - Activity Data and Emission Factors..... 3
 - Assumptions and Updates 3
 - System Bounderies..... 4
- Climate Impact 5
 - KPIs 7
 - Scope 1 8
 - Scope 2 9
 - KPIs, Scope 2..... 11
 - Scope 3 12
 - Category 1 - Purchased Goods 13
 - Category 1 - Purchased Services..... 15
 - Category 2 - Capital Goods..... 17
 - Category 3 - Fuel- and Energy-Related Activites..... 18
 - Category 4 - Upstream Transportation and Distribution..... 20
 - Category 5 - Waste Generated in Operations..... 21
 - Category 6 - Business Travel..... 23
 - Category 7 - Employee Commuting..... 25
- Reliability Analysis 26
- References..... 28
- Appendix 1 - Biogenic Carbon Dioxide Emissions..... 29



Introduction

This climate report describes SignMax's climate impact during the year 2022-2023 and has been made in collaboration with Atmoz. SignMax was founded in 2008 and develops and manufactures signs. In 2022-2023, the company had 68 employees (FTE) and a revenue of 161 MSEK.

Method

GHG Protocol

Atmoz calculations and reporting are carried out in accordance with the guidelines of the GHG (Greenhouse Gas) Protocol. The GHG Protocol is based on the following principles:

- **Relevance:** Reporting should reflect the company's or organization's emissions in an adequate manner so that it can support decision making for users both internally and externally.
- **Completeness:** Reporting should cover all emissions within the specified system boundary. Any exceptions should be described and explained.
- **Consistency:** The method of calculation should be consistent so that comparisons can be made over time. Changes in the data, system boundaries, methods or similar, should be documented.
- **Transparency:** All activity data, methods, sources and assumptions should be documented.
- **Accuracy:** The calculated emissions should be as close as possible to the actual emissions.

Scope

The GHG protocol divides greenhouse gas emissions into three so-called scopes, namely:

Scope 1, which includes direct emissions. These are emissions that the company has direct control over, such as emissions from company vehicles.

Scope 2, which includes indirect emissions from purchased energy, such as electricity and district heating.

Scope 3, which includes other indirect emissions. This includes emissions from all other activities, such as production, logistics, air travel, etc.

In cases where activities within scope 1 and 2 have a climate impact that arises in the life cycle but are not directly dependent on the activity, the climate impact falls within scope 3. Examples of such cases are production and transport of the fuels burned in company cars or production and maintenance of power plants that supply energy.



Consolidation Approach

The GHG protocol allows two different consolidation approaches; equity share and control approach. The chosen method affects, to a certain extent, the scope in which the climate impact is reported, but above all it has significance for ownership in other companies and what must be included in the calculation as a result. Under the control approach, a company accounts for 100 percent of the GHG emissions from operations over which it has control. When using the control approach to consolidate GHG emissions, companies shall choose between either the operational control or financial control approach. The consolidation approach used for SignMax's climate reporting is operational control, which means that the inclusion of emissions attributed to the reporting company is based on its operative control of the respective business activities.

Method Scope 2

According to the GHG protocol, greenhouse gas emissions from electricity must be reported in two ways in scope 2.

Location-based method, where greenhouse gas emissions are calculated based on an average value for the grid's electricity in the region / country.

Market-based method, where the climate impact is calculated based on electricity from a specific electricity agreement with guarantees of origin that has been actively purchased by the company. If the company doesn't have an agreement for a specific origin of electricity, the residual mix is used in the calculation. The residual mix is the electricity that is left when the sold guarantees of origin are removed. The Nordic residual mix is used for the Nordic countries, because of the common energy market. For other countries, the residual mix for the specific country is used.

Base Year

For the business's long-term climate strategy, a base year can be set, against which the current accounting year is compared. SignMax has not decided on a fixed base year, results are compared with the previous year. According to the GHG protocol, the base year needs to be recounted if certain types of changes are made within the scopes or method of calculation and the change is regarded as significant. As default, Atmoz has a threshold for recalculating the base year if the result shows a change equal to or greater than 5 % of the total emissions.

Recounting takes place if:

- Significant change in the organization's structure (e.g. addition of companies, in/out source changes)
- Significant change in calculation methodology (e.g. improved emission factors, improved activity data)
- Expansion of system boundaries that provide significant change
- Detection of significant errors or minor errors that together are significant

Recalculation of the base year does not occur due to organic growth.



Activity Data and Emission Factors

The activity data for 2022-2023 used in the climate calculation are stated by SignMax. Atmoz has in turn utilised emission factors in the climate calculation. In some calculations, the reported data has been complemented with the necessary assumptions and average values (see Assumptions and Updates).

All calculation factors used are of the unit CO₂ equivalents (CO₂e), which is a weighting of emitted greenhouse gases corresponding to the climate effect (Global Warming Potential) of carbon dioxide over a 100-year perspective and includes the seven greenhouse gases covered by the Kyoto Protocol: CO₂, CH₄, N₂O, HFCs, PFCs, SF₆ and NF₃¹. GWP values have been applied, where possible, according to the IPCC Fifth Assessment Report, 2014 (AR5). Refrigerants may in some cases contain substances that have a high climate impact but are not part of the Kyoto Protocol, in which case these are reported separately in Appendix 2.

According to the GHG protocol, the seven greenhouse gases above must be calculated and reported both separately and together as CO₂e. At present, Atmoz only reports the gases together, as the available emission factors from authorities and institutes etc. only are reported as CO₂e.

Atmoz counts all life-cycle emissions from electricity in category 3 Fuel- and energy-related activities that are not included in scope 1 or 2.

Calculation factors used for air travel take emissions of particles, NO_x and water vapor that occur at high altitude, the so-called "high altitude effect", into account. The calculation factor applied by Atmoz to take high-altitude effects during air travel into account is 1.9. The figure 1.9 has been developed by researchers at Chalmers University of Technology² and is stated by, among others, the Swedish Environmental Protection Agency and the Swedish Transport Agency.

Assumptions and Updates

Updates of 2021-2022 since last report:

- The amount of recycled aluminum has been corrected, leading to an increase of 7 tonnes CO₂e. The share of recycled content for one supplier was thought to be 40% but when not considering internal recycling the recycled content is 24%.
- The distribution of air and truck transport has been corrected for one supplier since new information has arisen regarding transport mode. The total climate impact for the supplier is still the same.
- What was previous categorized as building materials within purchased goods has been recategorized as wood.
- The climate impact of 23 tonnes CO₂e for purchased food (lunch and breakfast) and snacks has been added due to it was missed in last year's calculation.

¹ CO₂: Carbon dioxide, CH₄: Methan, N₂O: Nitrous oxide, HFC: Fluorinated hydrocarbons, PFC: Perfluorocarbons, SF₆: Sulfur hexafluoride and NF₃: Nitrogen trifluoride.

² Kamb and Larsson *Klimatpåverkan från svenska befolkningens flygresor 1990 – 2017* 2018



System Boundaries

SignMax's system boundaries are reported below.

Table 1. System boundaries for the climate audit.

	Extent	Comment
Scope 1		
Refrigerants	Included	Nothing added.
Vehicles	Included	No vehicle usage during the last years.
Stationary combustion	Not relevant	
Scope 2		
Electricity	Included	
District heating	Included	No district heating usage during the last years.
District cooling	Not relevant	
Scope 3		
<i>Upstream Categories</i>		
1: Purchased goods	Included	
1: Purchased services	Included	
2: Capital goods	Included	
3: Fuel- and energy-related activities (not included in scope 1 or 2)	Included	
4: Upstream transportation and distribution	Included	Most of the transportation is included however, transportation for smaller items without any related costs are excluded.
5: Waste generated in operations	Included	
6: Business travel	Included	
7: Employee commuting	Included	
8: Upstream leased assets	Not relevant	
<i>Downstream Categories</i>		
9: Downstream transportation and distribution	Not relevant	
10: Processing of sold products	Not relevant	
11: Use of sold products	Not relevant	
12: End-of-life treatment of sold products	Included	
13: Downstream leased assets	Not relevant	
14: Franchisers	Not relevant	
15: Investments	Not relevant	

Direct biogenic carbon dioxide emissions that occur when burning biomass/biofuels are outside SignMax's system boundaries and are not included in the climate report, in accordance with the GHG protocol. These emissions are not included because biomass/biofuels absorb as much carbon dioxide during their growth as they emit when burned. For transparency, direct biogenic carbon dioxide emissions are reported separately in Appendix 1 - Biogenic Carbon Dioxide Emissions.



Climate Impact

SignMax's operations during 2022-2023 resulted in greenhouse gas emissions of 1 178,4 tonnes CO₂e, presented in Figure 1 and Table 2 (market-based method, see Table 3 for location-based results). The biggest climate impact is within Scope 3. The three largest categories are purchased goods, accounting for 73,7% followed by upstream transportation and distribution accounting for 10,8% and purchased services corresponding to 10,2% of the climate impact. The result has since last year increased with 5,9%.

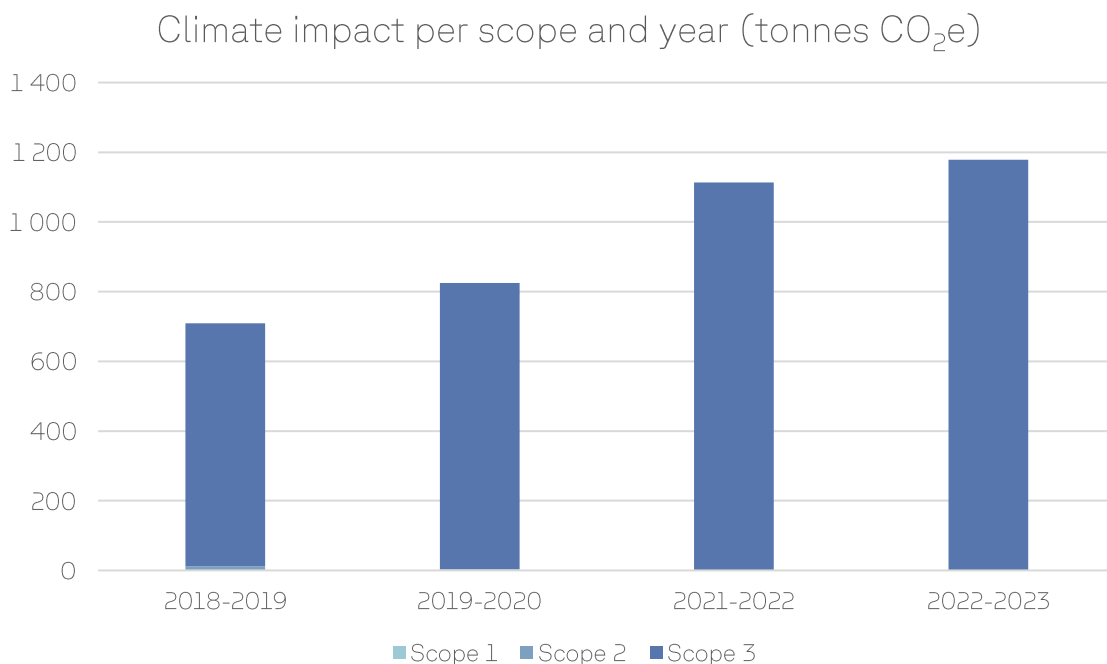


Figure 1. Climate impact (tonnes CO₂e) per scope with market-based method.



Table 2. Total climate impact (tonnes CO₂e) during 2018-2019 – 2022-2023 with market-based method. Change since previous year is shown both in tonnes CO₂e and %.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 – 2022-2023	Change % 2021-2022 – 2022-2023
Scope 1	0,1	0,0	0,0	0,0%	0,0	
Refrigerants		0,0	0,0	0,0%	0,0	
Vehicles	0,1					
Scope 2	12,1	0,1	0,4	0,0%	0,2	220,1%
District heating	1,6					
Electricity	10,5	0,1	0,4	0,0%	0,2	220,1%
Scope 3	697,4	1 113,0	1 178,1	100,0%	65,0	5,8%
Business travel	45,2	0,1	6,2	0,5%	6,1	4593,8%
Capital goods	82,8	48,0	7,1	0,6%	- 40,9	-85,3%
Employee commuting	17,5	44,5	38,8	3,3%	- 5,7	-12,7%
End-of-life treatment of sold products		2,1	2,4	0,2%	0,3	14,0%
Fuel- and energy-related activities	0,2	4,3	6,6	0,6%	2,3	54,0%
Purchased goods	356,6	734,6	868,1	73,7%	133,5	18,2%
Purchased services	4,5	138,9	120,4	10,2%	- 18,5	-13,3%
Upstream transportation and distribution	187,6	139,4	126,9	10,8%	- 12,4	-8,9%
Waste	2,9	1,2	1,5	0,1%	0,3	25,4%
Total	709,6	1 113,1	1 178,4	100,0%	65,3	5,9%

According to the Paris Agreement, global warming must not exceed 1.5 degrees °C. To be in line with the Paris Agreement, according to the Carbon Law³, companies need to halve their emissions every decade from 2020 onwards, preferably faster. This means an annual reduction rate of at least 7% of total emissions (scope 1,2 and all of scope 3). For SignMax 7% would mean a reduction of 82,5 tonnes by next year, which Atmoz recommends striving for as a minimum.

Table 3 shows the results with the scope 2 location-based method.

³ Rockström et al. *A roadmap to decarbonization* 2017



Table 3. Total climate impact (tonnes CO₂e) with the location-based method.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 – 2022-2023	Change % 2021-2022 – 2022-2023
Scope 1	0,1	0,0	0,0	0,0%	0,0	
Refrigerants		0,0	0,0	0,0%	0,0	
Vehicles	0,1					
Scope 2	1,6	44,5	57,8	4,7%	13,3	29,9%
District heating	1,6					
Electricity		44,5	57,8	4,7%	13,3	29,9%
Scope 3	697,4	1 118,0	1 183,4	95,3%	65,5	5,9%
Business travel	45,2	0,1	6,2	0,5%	6,1	4593,8%
Capital goods	82,8	48,0	7,1	0,6%	- 40,9	-85,3%
Employee commuting	17,5	44,5	38,8	3,1%	- 5,7	-12,7%
End-of-life treatment of sold products		2,1	2,4	0,2%	0,3	14,0%
Fuel- and energy-related activities	0,2	9,3	12,0	1,0%	2,8	29,9%
Purchased goods	356,6	734,6	868,1	69,9%	133,5	18,2%
Purchased services	4,5	138,9	120,4	9,7%	- 18,5	-13,3%
Upstream transportation and distribution	187,6	139,4	126,9	10,2%	- 12,4	-8,9%
Waste	2,9	1,2	1,5	0,1%	0,3	25,4%
Total	699,1	1 162,5	1 241,3	100,0%	78,8	6,8%

KPIs

Table 4. KPIs for the total climate impact for 2018-2019 – 2022-2023 with market-based method. Change since previous year is shown both in tonnes CO₂e and %.

KPI	2018-2019	2021-2022	2022-2023	Change 2021-2022 – 2022-2023	Change % 2021-2022 – 2022-2023	Unit
Climate impact per employee	15,10	18,87	17,33	- 1,54	-8,1%	t CO ₂ e / FTE
Climate impact per revenue	9,27	8,32	7,33	- 0,99	-11,9%	t CO ₂ e / MSEK

The climate impact has increased mainly due to increased amount of material to SignMax's products. SignMax is recommended to set up a reduction plan to identify actions to reduce the climate impact. The climate impact per revenue has decreased with 11%.



Scope 1

SignMax has no climate impact within Scope 1 since no refrigerants have been refilled, see Figure 2 and Table 5. SignMax's scope 1 has previously also consisted of combustion of fuel in vehicles.

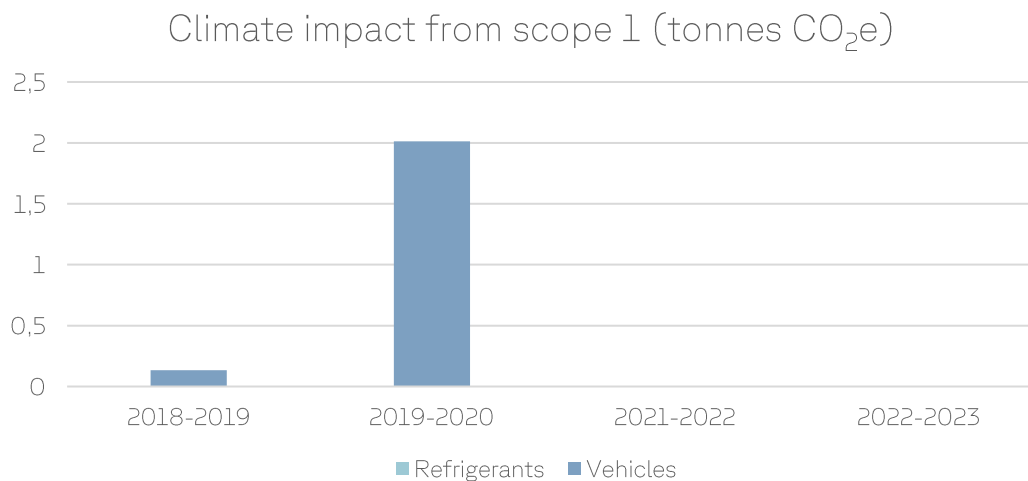


Figure 2. Climate impact (tonnes CO₂e) within scope 1.

Table 5. Climate impact (tonnes CO₂e) within scope 1.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	Change 2021-2022 - 2022-2023
Refrigerants	0	0	0	-
Refrigerants	0	0	0	-
Vehicles	0,1			
Car	0,1			
Total	0,1	0	0	-



Scope 2

SignMax's climate impact from scope 2 comes from electricity use and heating in the premises in Landvetter. The climate impact from scope 2 with the market-based method 2022-2023 accounts for 0,4 tonnes CO₂e, corresponding to 0,03% of SignMax's measured climate impact. See Figure 3 below for the climate impact in scope 2. Since last year the climate impact has increased with 220,1%.

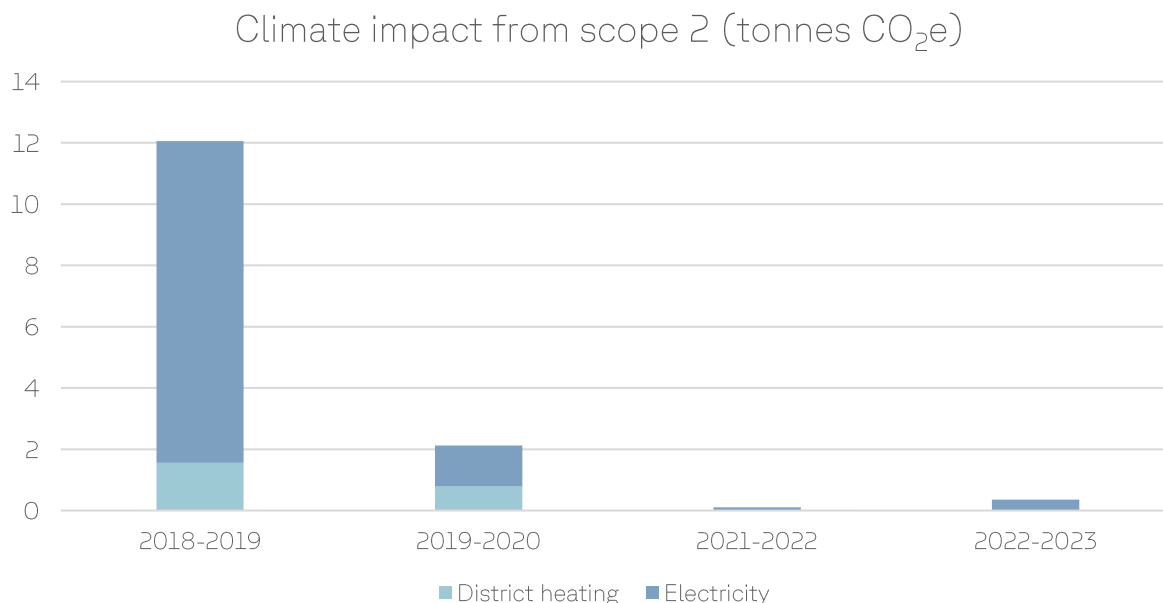


Figure 3. Climate impact from scope 2 with market-based method.

Results for market-based electricity are presented in Table 6 and location-based electricity in Table 7. The market-based method takes renewable energy certificates into account. In the location-based method the country's average climate impact for electricity is used. For the Nordic countries the average Nordic electricity mix is used.

Table 6. Climate impact (tonnes CO₂e) for respective energy type 2018-2019 - 2022-2023 calculated with market-based method. Change since previous year is shown in both tonnes CO₂e and %.

	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Climate impact (tonnes CO ₂ e)						
District heating	1,6					
Jonsered	1,6					
Electricity	10,5	0,1	0,4	100,0%	0,2	220,1%
Renewable unspec.	2,8	0,1	0,4	100,0%	0,2	220,1%
Solar power		0	0	0,0%	0	
Unspecified	7,7					
Total	12,1	0,1	0,4	100,0%	0,2	220,1%



Table 7. Climate impact (tonnes CO₂e) for scope 2 calculated with location-based method. Change since previous year is shown in both tonnes CO₂e and %. Location-based results are only shown for the last two years.

Climate impact (tonnes CO ₂ e)	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
District heating					
Electricity	44,5	57,8	100,0%	13,3	29,9%
Location-based	44,5	57,8	100,0%	13,3	29,9%
Total	44,5	57,8	100,0%	13,3	29,9%

Figure 4 shows the origin of the consumed electricity. Table 8 show the yearly consumption of electricity and the origin of the consumed electricity. The share of fossil free electricity this year is 100%.

Origin of electricity (kWh)

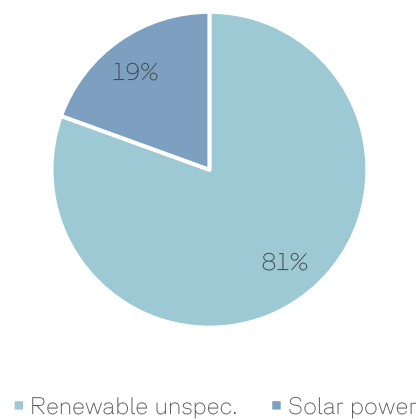


Figure 4. Electricity consumption per energy source.

Table 8. Electricity consumption (kWh) per year and energy source.

	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
District heating	24 000					
Jonsered	24 000					
Electricity	256 066	275 281	293 568	100,0%	18 287	6,6%
Renewable unspec.	225 187	226 081	236 428	80,5%	10 347	4,6%
Solar power		49 200	57 140	19,5%	7 940	16,1%
Unspecified	30 879					
Total	280 066	275 281	293 568	100,0%	18 287	6,6%



KPIs, Scope 2

Table 9. KPIs for scope 2 for the years 2018-2019 – 2022-2023 with market-based method.

KPI Scope 2	2018-2019	2021-2022	2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023	Unit
Climate impact per area	9,6	0,04	0,11	0,07	220,1%	kg CO ₂ e / m ²
Energy consumption per area	222,98	91,06	97,11	6,05	6,6%	kWh / m ²

The business is recommended to continue purchasing renewable electricity as it is an effective measure to reduce its climate impact. In addition to purchase renewable electricity, it is also important to work with energy efficiency as the renewable electricity must be sufficient for a lot in an increasingly electrified society.



Scope 3

The climate impact within scope 3 stands for 1 178,1 tonnes CO₂e corresponding to 99,97% of the calculated climate impact, see Figure 5 and Table 10. SignMax's scope 3 consists of business travel, employee commuting, waste, upstream transportation and distribution, purchased goods and services, end-of-life treatment of sold products and capital goods. Scope 3 has since last year increased with 5,8%.

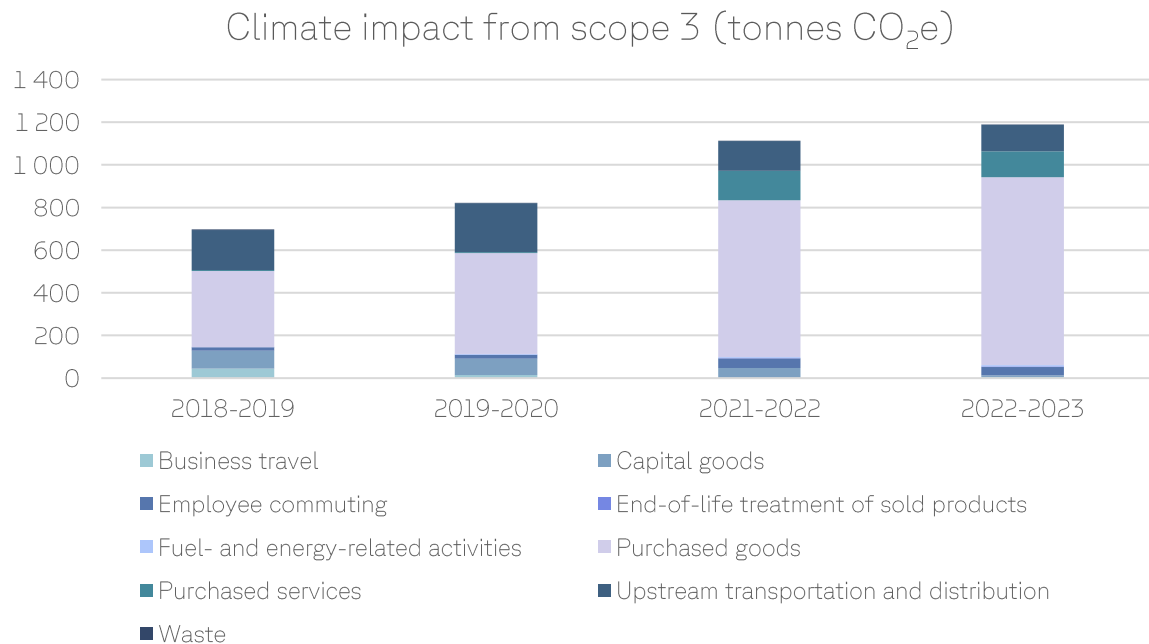


Figure 5. Climate impact within scope 3.

Table 10. Climate impact (tonnes CO₂e) within scope 3.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Business travel	45,2	0,1	6,2	0,5%	6,1	4593,8%
Capital goods	82,8	48,0	7,1	0,6%	- 40,9	-85,3%
Employee commuting	17,5	44,5	38,8	3,3%	- 5,7	-12,7%
End-of-life treatment of sold products		2,1	2,4	0,2%	0,3	14,0%
Fuel- and energy-related activities	0,2	4,3	6,6	0,6%	2,3	54,0%
Purchased goods	356,6	734,6	868,1	73,7%	133,5	18,2%
Purchased services	4,5	138,9	120,4	10,2%	- 18,5	-13,3%
Upstream transportation and distribution	187,6	139,4	126,9	10,8%	- 12,4	-8,9%
Waste	2,9	1,2	1,5	0,1%	0,3	25,4%
Total	697,4	1 113,0	1 178,1	100,0%	65,0	5,8%



Category 1 - Purchased Goods

Purchased goods accounts for 868,1 tonnes CO₂e, corresponding to 73,7%. Figure 6 and Table 11 show SignMax's climate impact from purchased goods. The largest category is materials why the climate impact is showed in detail in a separate table. Since last year the climate impact has increased 18,2%.

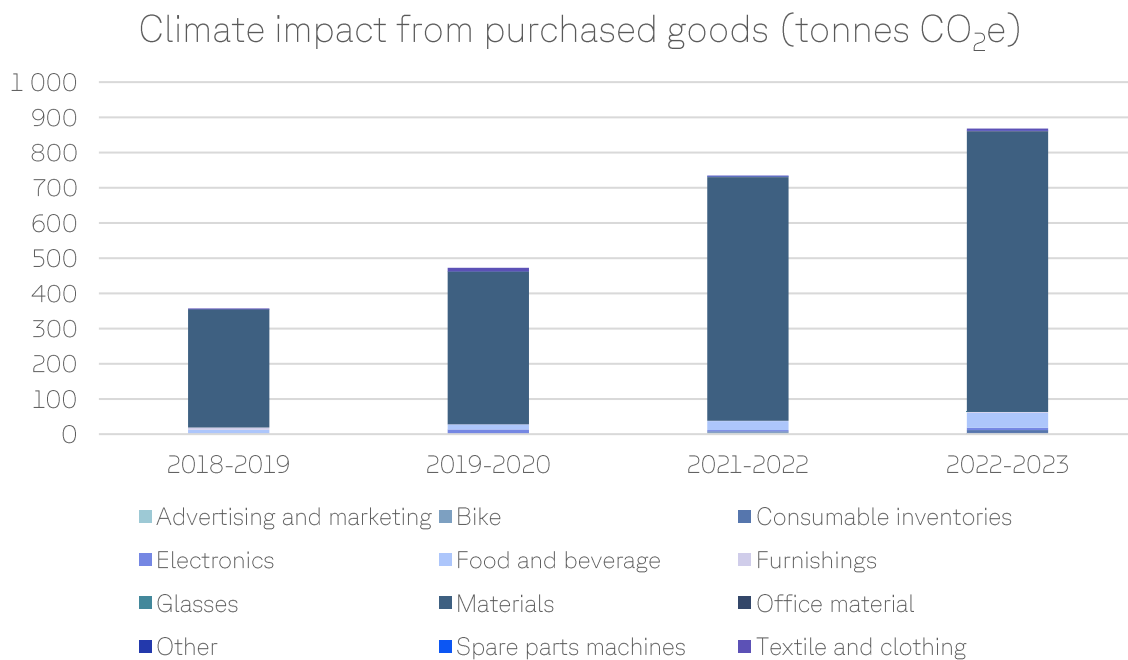


Figure 6. Climate impact from purchased goods.

Table 11. Climate impact (tonnes CO₂e) from purchased goods 2018-2019 - 2022-2023. Change since previous year is shown in both tonnes CO₂e and %.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Advertising and marketing		4,2	2,7	0,3%	- 1,5	-35,7%
Bike			0,4	0,0%	0,4	
Consumable inventories		3,4	8,2	0,9%	4,8	141,0%
Electronics	0,6	3,7	6,8	0,8%	3,1	82,6%
Food and beverage	11,6	25,5	42,6	4,9%	17,1	66,9%
Furnishings	6,7	1,0	2,6	0,3%	1,6	158,0%
Glasses			0,1	0,0%	0,1	
Materials	335,7	692,1	795,8	91,7%	103,7	15,0%
Office material	0,2	1,8	1,7	0,2%	- 0,1	-5,1%
Other	0,9	0,3	0,7	0,1%	0,4	120,6%
Spare parts machines		0,0	0,0	0,0%	0,0	-52,0%
Textile and clothing	1,0	2,4	6,4	0,7%	4,0	166,0%
Total	356,6	734,6	868,1	73,7%	133,5	18,2%



Table 12. Climate impact (tonnes CO₂e) from materials shown in table 11 in details.

Climate impact (tonnes CO ₂ e)	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Board	20,0	19,9	2,5%	- 0,1	-0,5%
Chemicals	4,4	4,1	0,5%	- 0,3	-5,9%
Ethanol		0,1	0,0%	0,1	
Lubricating oil	0,0	0,0	0,0%	0,0	380,0%
Organic	1,7	1,2	0,2%	- 0,4	-25,5%
Printing ink	2,7	2,7	0,3%	0,0	1,5%
Silicone		0,0	0,0%	0,0	
Metal	472,9	558,7	70,2%	85,9	18,2%
Unspecified	11,0	0,1	0,0%	- 10,8	-98,7%
Aluminum	362,6	418,9	52,6%	56,2	15,5%
Brass	18,6	20,0	2,5%	1,4	7,6%
Magnet (Neodym)	56,8	86,0	10,8%	29,1	51,2%
Nickel	0,1	0,1	0,0%	0,0	-15,7%
Stainless steel	21,8	22,6	2,8%	0,8	3,7%
Steel	1,9	11,1	1,4%	9,2	479,9%
Paper	3,2	7,7	1,0%	4,5	137,2%
Plastic	186,5	203,2	25,5%	16,6	8,9%
Unspecified	16,6	5,0	0,6%	- 11,6	-70,0%
ABS		0,2	0,0%	0,2	
HDPE	0,8			- 0,8	-100,0%
LDPE and LLDPE	3,3	3,4	0,4%	0,1	1,6%
PA		0,0	0,0%	0,0	
PC	2,3	1,5	0,2%	- 0,9	-36,8%
PE		5,0	0,6%	5,0	
PET	6,5	11,3	1,4%	4,8	74,0%
PLA (biodegradeble)	0,2	0,0	0,0%	- 0,2	-84,4%
PMMA	90,0	110,4	13,9%	20,4	22,7%
PP	5,5	2,5	0,3%	- 3,0	-54,9%
PUR	0,3	0,0	0,0%	- 0,3	-99,5%
PVC	60,5	63,9	8,0%	3,5	5,7%
Rubber	0,6	0,0	0,0%	- 0,6	-99,8%
Textiles	1,6	0,4	0,1%	- 1,2	-74,5%
Wood	3,6	1,9	0,2%	- 1,7	-48,1%
Total	692,1	795,8	100,0%	103,7	15,0%

The business is advised to review its material choices and to a greater extent buy material with a high percentage of recycled materials. Further, SignMax is recommended to ask for EPDs from their material suppliers to be able to choose the supplier with the best climate performance.



Category 1 - Purchased Services

Figure 7 and Table 13 show SignMax's climate impact from purchased services. The climate impact from this category accounts for 120,4 tonnes CO₂e corresponding to 10,2% of the total climate impact. Since last year, the climate impact has decreased with 13,3%. SignMax has increased the scope of purchased services during the last two years as can be seen in the graph below.

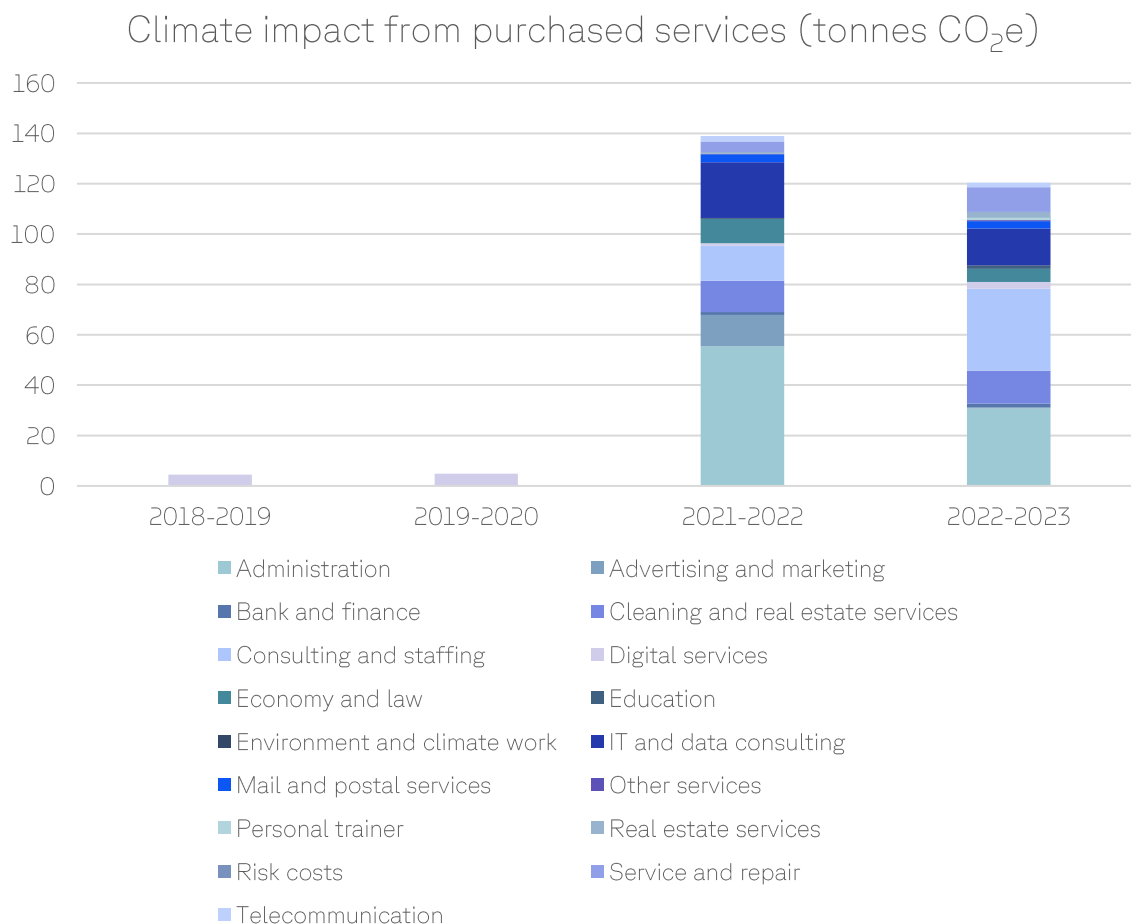


Figure 7. Climate impact from purchased services.



Table 13. Climate impact (tonnes CO₂e) from services 2018-2019 – 2022-2023. Change since previous year is shown in both tonnes CO₂e and %.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Administration		55,4	30,8	25,6%	- 24,6	-44,4%
Advertising and marketing		12,5	0,5	0,4%	- 11,9	-95,7%
Bank and finance		1,2	1,3	1,1%	0,1	6,0%
Cleaning and real estate services		12,4	13,1	10,9%	0,8	6,3%
Consulting and staffing		13,9	32,5	27,0%	18,6	134,1%
Digital services	4,5	1,1	2,7	2,3%	1,6	154,0%
Economy and law		9,6	5,3	4,4%	- 4,3	-45,2%
Education		0,3	1,1	0,9%	0,7	210,0%
Environment and climate		0,1	0,2	0,2%	0,2	298,2%
IT and data consulting		22,0	14,6	12,1%	- 7,4	-33,7%
Mail and postal services		3,2	2,9	2,4%	- 0,3	-8,2%
Other services		0,3	0,4	0,3%	0,1	40,7%
Personal trainer			1,1	0,9%	1,1	
Real estate services		0,6	2,2	1,8%	1,6	249,8%
Risk costs		0,0	0,1	0,0%	0,0	204,5%
Service and repair		4,2	9,8	8,2%	5,6	132,8%
Telecommunication		2,1	1,8	1,5%	- 0,3	-16,4%
Total	4,5	138,9	120,4	100,0%	- 18,5	-13,3%

Purchased services are calculated on financial data (spend data), which makes it difficult to demonstrate a reduction. To improve the calculation, the business is recommended to ask its suppliers for information regarding the climate impact for the service in question. In addition to reviewing the business's purchased services and their relevance, one way to work with the climate impact from purchased services is to raise the issue with suppliers and to make demands. It is something that in the long run can lead to a reduced climate impact from purchased services.

SignMax has started the work to replace the financial data for some of the consultants. The climate impact is based on an average office material consumption and an electricity usage for home office since these consultants are working from home.



Category 2 - Capital Goods

Figure 8 and Table 14 show SignMax's climate impact from capital goods. The climate impact from this category accounts for 7,1 tonnes CO₂e corresponding to 0,6% of the total climate impact. Since last year the climate impact has decreased with 85,3%.

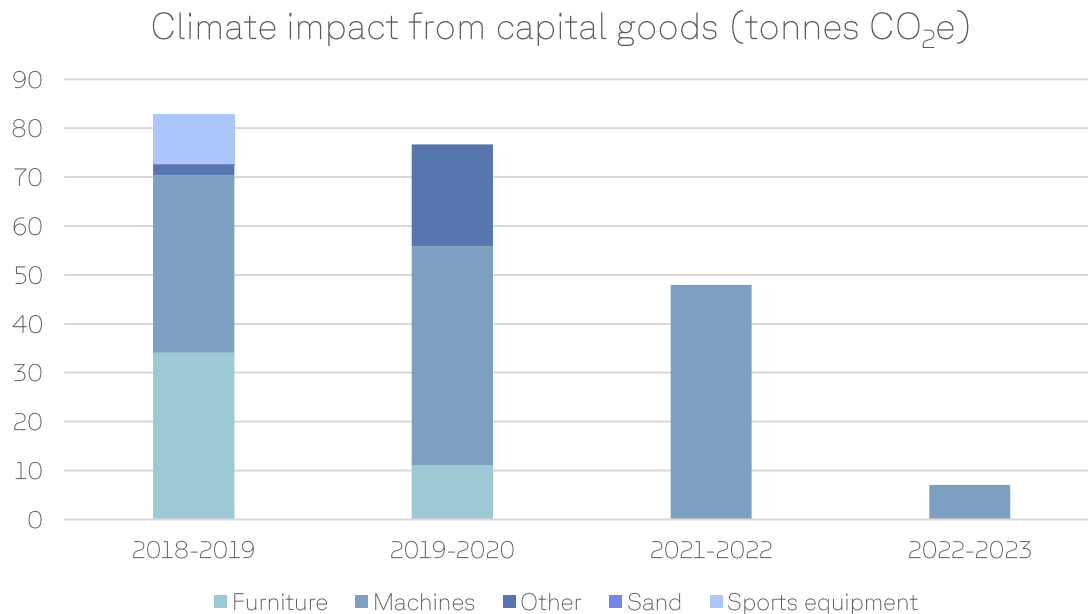


Figure 8. Climate impact from capital goods.

Table 14. Climate impact (tonnes CO₂e) from capital goods 2018-2019 - 2022-2023 Change since previous year is shown in both tonnes CO₂e and %.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Furniture	34,1					
Machines	36,2	48,0	7,1	100,0%	- 40,9	-85,3%
Other	2,2					
Sand	0,2					
Sports equipment	10,1					
Total	82,8	48,0	7,1	100,0%	- 40,9	-85,3%

SignMax has reduced the climate impact to a large extent for its capital goods. The company is encouraged to maintain the investments low and focus on reparations and maintenance of existing production equipment.



Category 3 - Fuel- and Energy-Related Activities

The category fuel- and energy related activities includes indirect lifecycle emissions related to emission sources in scope 1 and 2. The category includes the climate impact from extraction and production of fuel, construction and maintenance of power systems and transmission and distribution losses in electricity grids. The climate impact from this category accounts for 6,6 tonnes CO₂e corresponding to 0,6% of the measured climate impact, see Figure 9 and Table 15. The climate impact from this category is depended on the scope 2 method used for purchased electricity, why also the results for the location-based method is shown in Table 16.

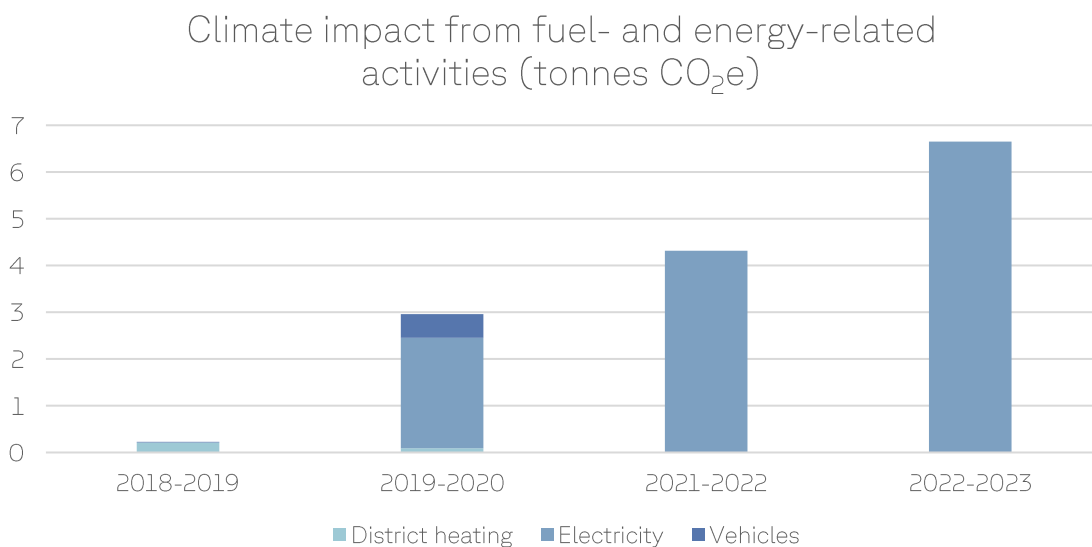


Figure 9. Climate impact from fuel- and energy-related activities with market-based method.

Table 15. Climate impact from fuel- and energy-related activities with market-based method.

	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Climate impact (tonnes CO₂e)						
District heating	0,2					
Jonsered	0,2					
Electricity	0	4,3	6,6	100,0%	2,3	54,0%
Renewable unspec.	0	3,0	5,1	76,8%	2,1	70,9%
Solar power		1,3	1,5	23,2%	0,2	16,1%
Unspecified	0					
Vehicles	0,014					
Diesel	0,008					
Gasoline hybrid	0,006					
Total	0,2	4,3	6,6	100,0%	2,3	54,0%



Table 16. Climate impact from fuel- and energy-related activities with location-based method, only two years measured.

Climate impact (tonnes CO ₂ e)	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-	Change % 2021-2022 - 2022-2023
District heating					
Jonsered					
Electricity	9,3	12,0	100,0%	2,8	29,9%
Location-based	9,3	12,0	100,0%	2,8	29,9%
Vehicles					
Diesel					
Gasoline hybrid					
Total	9,3	12,0	100,0%	2,8	29,9%

The climate impact from this category is dependent on the activities in scope 1 and 2, it means that reductions in scope 1 and 2 also reduce the climate impact from this category. To reduce the climate impact from this category, the business can purchase electricity of renewable origin and reduce the amount of fossil fuels used by the business. Even when measures are taken, there will always be a small climate impact within this category because of the business's activity in scope 1 and 2.



Category 4 - Upstream Transportation and Distribution

Upstream transportation and distribution consist of the inbound logistics (freight, warehousing, and transshipment in premises) of purchased products as well as the outbound logistics that the business pays for. In total, the climate impact from this category accounts for 126,9 tonnes CO₂e, corresponding to 10,8% of the total climate impact. Figure 10 and Table 17 illustrates SignMax's climate impact from upstream transportation and distribution. Since last year the climate impact has decreased by 8,9%.

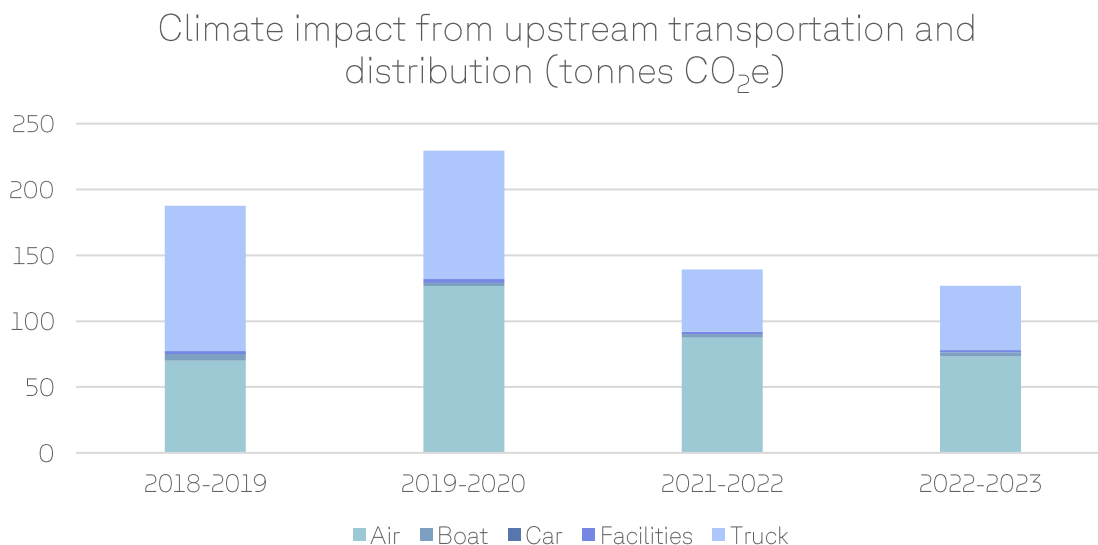


Figure 10. Climate impact (tonnes CO₂e) from upstream transportation and distribution.

Table 17. Climate impact (tonnes CO₂e) from upstream transportation and distribution 2018-2019 - 2022-2023. Change since previous year is shown in both tonnes CO₂e and %.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Air	70,0	87,4	73,2	57,6%	- 14,3	-16,3%
Boat	5,2	2,6	3,3	2,6%	0,6	24,7%
Car	0,0					
Facilities	2,1	1,8	1,6	1,3%	- 0,1	-6,9%
Truck	110,3	47,5	48,8	38,5%	1,3	2,8%
Total	187,6	139,4	126,9	100,0%	- 12,4	-8,9%

The business is recommended to request environmental reports from suppliers and to choose suppliers that use HVO as fuel for truck transport. Transports run with high fill rates and buying from more local suppliers also reduces the climate impact from logistics.

Where possible, transport by train and boat is recommended. Air transport should be avoided as much as possible.



Category 5 - Waste Generated in Operations

Figure 11 and Table 18 show SignMax's climate impact from waste. The climate impact from waste accounts for 1,48 tonnes CO₂e, corresponding to 0,13% of the total climate impact. Since last year the climate impact has increased with 25,4%.

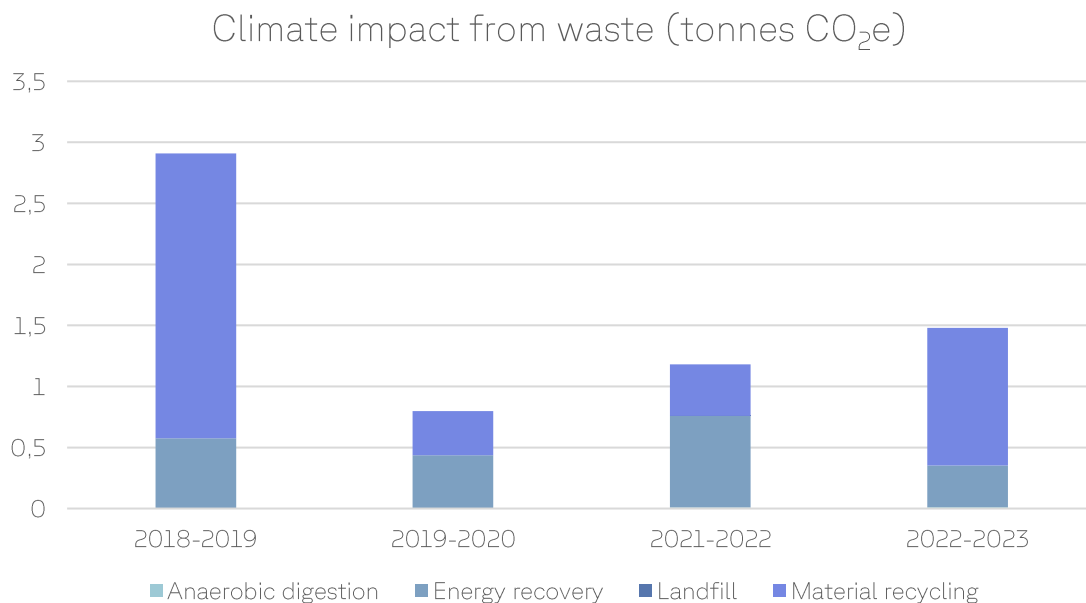


Figure 11. Climate impact from waste.



Table 18. Climate impact (tonnes CO₂e) from waste 2018-2019 - 2022-2023. Change since previous year is presented in both tonnes CO₂e and %.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Anaerobic		0,01	0,01	0,8%	0,00	26,1%
Organic waste		0,01	0,01	0,8%	0,00	26,1%
Energy recovery	0,57	0,75	0,34	23,0%	- 0,41	-54,5%
Electronics			0,003	0,2%	0,00	
Household waste		0,01	0,01	0,5%	0,00	2,2%
Industrial waste	0,44	0,59	0,33	22,3%	- 0,26	-43,8%
Wood	0,13	0,15			- 0,15	-100,0%
Landfill	0	0,0005			0,00	-100,0%
Construction Materials	0	0,0005			0,00	-100,0%
Mixed		0,000005			0,00	-100,0%
Material recycling	2,33	0,42	1,13	76,2%	0,71	167,3%
Batteries	0,001	0,00004			0,00	-100,0%
Construction Materials	0,17	0,01			- 0,01	-100,0%
Electronic waste	0,00002	0,002			0,00	-100,0%
Glass		0,001	0,003	0,2%	0,00	237,8%
Industrial waste	0,07	0,001	0,37	25,2%	0,37	30601,8%
Metal	0,75	0,21	0,40	27,3%	0,19	90,1%
Paper and	0,56	0,16	0,16	11,0%	0,00	0,7%
Plastic	0,67	0,04	0,03	2,1%	- 0,01	-16,8%
Scrap metal			0,01	0,8%	0,01	
Wood	0,11		0,14	9,5%	0,14	
Total	2,91	1,18	1,48	100,0%	0,30	25,4%

To reduce the climate impact from waste, the business should work to reduce the amount of waste generated in the operations. The business is recommended to sort and recycle the waste as much as possible.



Category 6 - Business Travel

Business travel amounts to 6,2 tonnes or 0,5% of SignMax's total climate impact 2022-2023. SignMax's business travel with flight stands for the biggest part of the climate impact as can be seen in Figure 12 and Table 19. Since last year the climate impact has increased by 4593,8%.

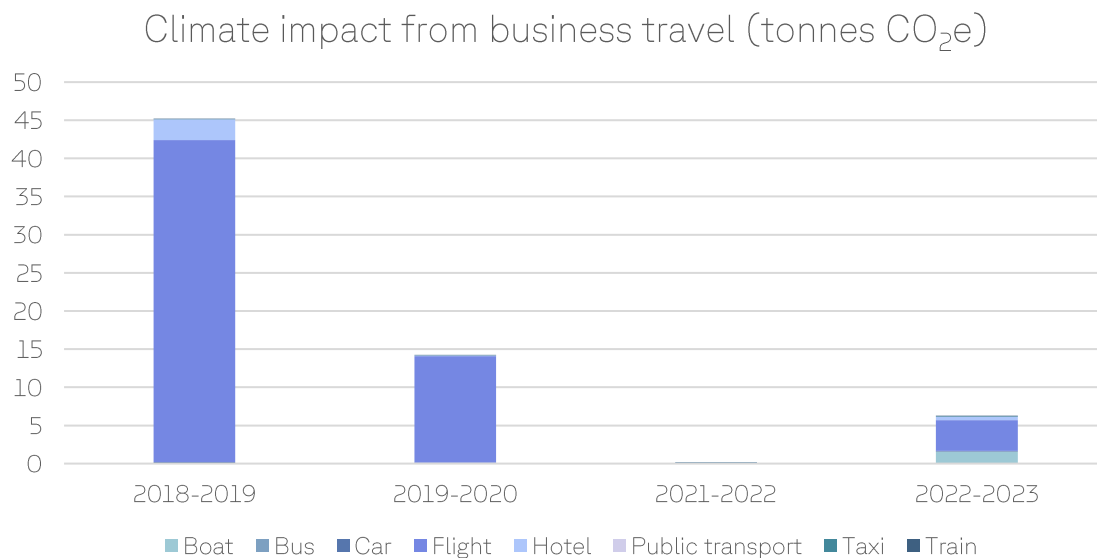


Figure 12. Climate impact of business travel.

Table 19. Climate impact (tonnes CO₂e) from business travel 2018-2019 - 2022-2023. Change since previous year is shown in both tonnes CO₂e and %.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Boat			1,6	25,0%	1,6	
Bus	0,04		0,01	0,2%	0,01	
Car	0,2	0,1	0,1	1,6%	- 0,007	-7,3%
Flight	42,2	0	4,0	64,8%	4,0	
Hotel	2,7	0,01	0,4	6,9%	0,4	4861,2%
Public transport			0,001	0,0%	0,001	
Taxi	0,02	0,04	0,1	1,5%	0,1	2129,7%
Train	0,004	0,01	0,00003	0,0%	-0,01	-99,8%
Total	45,2	0,1	6,2	100,0%	6,1	4593,8%



Air Travel

In Table 20 the climate impact from air travel is presented. It accounted for 4,0 tonnes CO₂e. The most common flight route was between Gothenburg and Munich.

Table 20. Most common routes 2022-2023.

Route	No. flights	% of all flights	Emission/ Flight (kg)	Total emissions (kg)	% of total emissions	Total distance (pkm)	% of total distance
GOT-MUC	8	33,3%	216	1 725	42,7%	8 486	45,2%
BER-GOT	4	16,7%	134	535	13,2%	2 309	12,3%
ARN-TLL	4	16,7%	102	408	10,1%	1 555	8,3%
GOT-ZRH	4	16,7%	233	931	23,0%	4 645	24,8%
GOT-HEL	2	8,3%	169	338	8,4%	1 568	8,4%
HEL-TLL	2	8,3%	53	107	2,6%	201	1,1%
Total	24	100,0%	168	4 043	100,0%	18 764	100,0%

KPIs, Business Travel

Table 21. KPIs for business travel 2018-2019 - 2022-2023. Change since previous year is shown both in tonnes CO₂e and %.

KPI Business travel	2018-2019	2021-2022	2022-2023	Change 2021-2022 -	Change % 2021-2022 -	Unit
Climate impact per employee	0,96	0,002	0,09	0,09	3972,6%	t CO ₂ e / FTE

Big climate benefits can be made by cutting down on short flights and replacing them with travels by train or digital meetings. The focus is therefore to reduce air travel.

For trips by taxi and the use of rental cars, electric vehicles should be chosen in the first place.



Category 7 - Employee Commuting

The climate impact from employee commuting accounts for 38,8 tonnes CO₂e as can be seen in Figure 13 and Table 22, which corresponds to 3,3% of SignMax's total climate impact. Since last year, the impact has decreased with 12,7%.

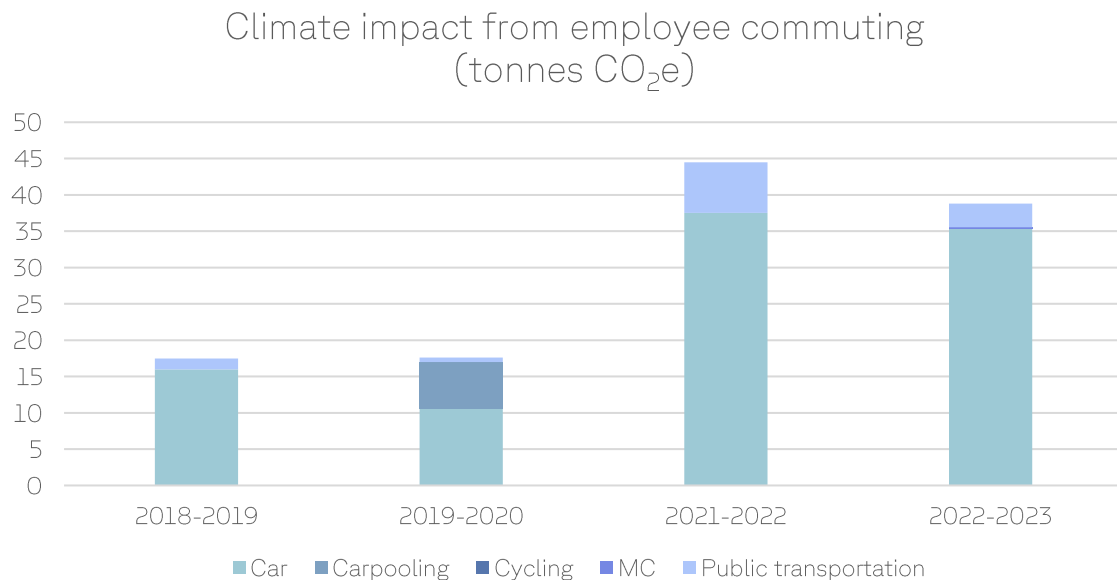


Figure 13. Climate impact from employee commuting.

Table 22. Climate impact (tonnes CO₂e) from employee commuting 2018-2019 - 2022-2023. Change since previous year is shown in both tonnes CO₂e and %.

Climate impact (tonnes CO ₂ e)	2018-2019	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Car	16,0	37,5	35,4	91,1%	- 2,2	-5,8%
Cycling		0	0	0%	0	
MC			0,2	0,5%	0,2	
Public transportation	1,5	6,9	3,3	8,4%	- 3,7	-52,8%
Total	17,5	44,5	38,8	100,0%	- 5,7	-12,7%

Climate benefits can be made by encouraging employees to commute to work by walking or cycling or by public transport. Encouragement can be done in many ways such as discounted commuter cards, bicycle services and information campaigns. Increased work from home also contributes to reducing the climate impact.



Reliability Analysis

The reliability analysis classifies the result into three categories, measured, estimated and spend (financial data) based on the reliability of the activity data. The purpose is to evaluate the activity data and see whether the data collection can be improved. The analysis is based on whether the data is measured or estimated by the company or whether financial data has been used. Generalizations and average values for emission factors are not evaluated because the company have no influence on these.

Data that are estimated can be replaced with measured data to give a higher reliability of the result. Spend data should be used to a limited extent to achieve higher reliability. Climate impact calculated on spend data gives an overall picture and it can be difficult to reduce climate impact based on such a basis. This is because prices can vary, which falsely makes it look like the climate impact has changed. The distribution of measured, estimated and spend based values is presented in Figure 14 below.

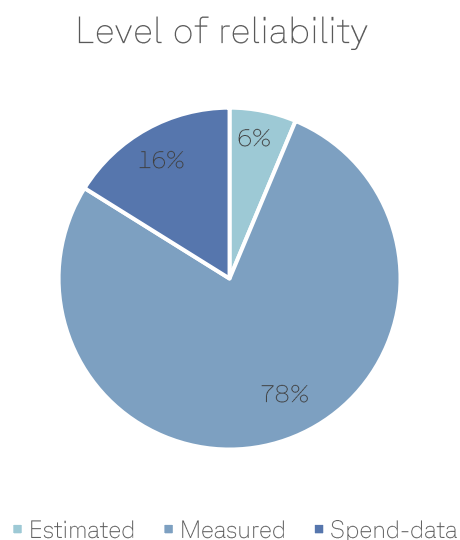


Figure 14. Reliability analysis of data for the climate audit.



Table 23. Distribution of climate impact based on data quality.

Climate impact (tonnes CO2e)	2022-2023
Estimated	74,4
Business travel	1,6
Employee commuting	38,8
Purchased services	0,1
Upstream transportation and distribution	33,9
Measured	914,0
Business travel	4,5
Capital goods	6,7
Electricity	0,4
End-of-life treatment of sold products	2,4
Fuel- and energy-related activities	6,6
Purchased goods	796,9
Purchased services	3,0
Refrigerants	0,0
Upstream transportation and distribution	92,0
Waste	1,5
Spend-data	190,0
Business travel	0,1
Capital goods	0,4
Purchased goods	71,3
Purchased services	117,2
Upstream transportation and distribution	1,0

The majority of the data is measured which is good. To increase the share of measured data SignMax can put pressure on the suppliers to deliver climate footprints.



References

Sources for 2022-2023

Business travel

Atmoz 2022
Greenview Hotel Footprinting Tool 2023
NTM Calc 2023
SCB 2022
SJ 2022
The Swedish Energy Agency 2021 / DEFRA 2022
The Swedish Energy Markets Inspectorate 2022

Capital goods

DEFRA 2022
SCB 2022

Electricity

Atmoz 2022
The Swedish Energy Markets Inspectorate 2022
Vattenfall 2021

Employee commuting

Atmoz 2022
NTM Calc 2023

End-of-life treatment of sold products

DEFRA 2022

Fuel- and energy-related activities

Atmoz 2022
The Swedish Energy Markets Inspectorate 2022
Vattenfall 2021

Purchased goods

DEFRA 2022
Duane et al. 2022
Ecoinvent 3.8
Ecoinvent 3.9
Idemat2022
SCB 2022

Purchased services

Atmoz 2023
AWS
SCB 2022

Upstream transportation and distribution

Bring
Budbee
DEFRA 2022
DHL Express
DHL Freight
NTM CALC 2022
Postnord
SCB 2022

Waste

DEFRA 2022



Appendix 1 - Biogenic Carbon Dioxide Emissions

Here, biogenic carbon dioxide emissions that occur within the business and its value chain are reported. Biogenic carbon dioxide emissions occur during the combustion of biomass or biofuels. According to the GHG protocol, biogenic carbon dioxide emissions are not included in the business's reporting limits as the biomass absorbs as much carbon dioxide as is emitted when it is incinerated. According to the GHG protocol, however, biogenic emissions must be reported separately, which is done in this appendix. Biogenic methane and nitrous oxide are included in the GHG protocol and are therefore already included in previously presented results.

In 2022-2023 39,2 tonnes of biogenic carbon dioxide were emitted. Figure A1 and Table A1 are showing in which scope the emissions arise. The emissions come from biofuels used in cars and trucks and from combustion of biomass for electricity. Biogenic emissions from logistics suppliers providing CO₂e data for their services are not included since no information regarding biogenic CO₂ emissions was given. The results are therefore not showing the whole picture.

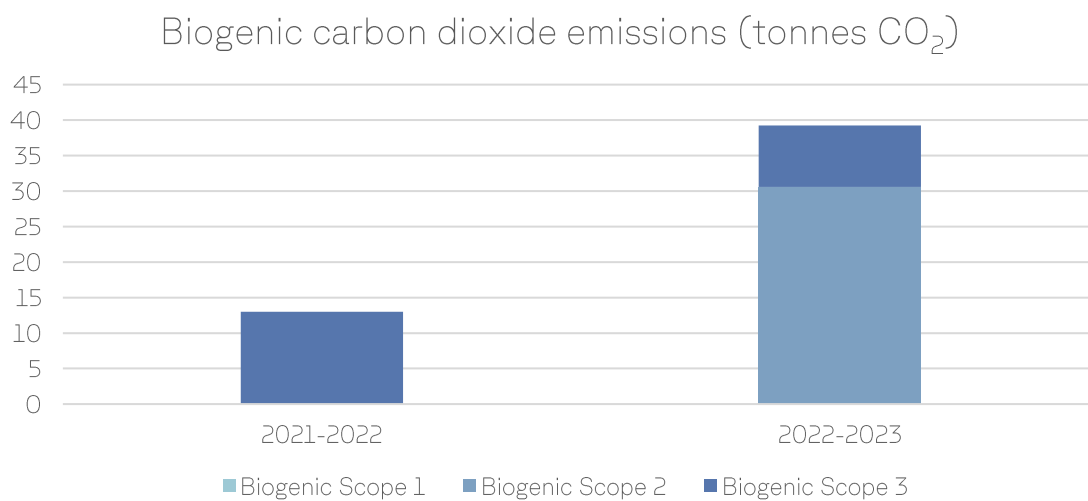


Figure A1. Biogenic emissions (tonnes CO₂).

Table A1. Biogenic emissions (tonnes CO₂). * No biogenic emissions were calculated from electricity 2021-2022.

Climate impact (tonnes CO ₂)	2021-2022	2022-2023	% of total 2022-2023	Change 2021-2022 - 2022-2023	Change % 2021-2022 - 2022-2023
Biogenic Scope 1	0	0		0,0	
Biogenic Scope 2	0*	30,6	78,0%	30,6	
Biogenic Scope 3	13,0	8,6	22,0%	- 4,3	-33,4%
Total	13,0	39,2	100,0%	26,3	202,1%