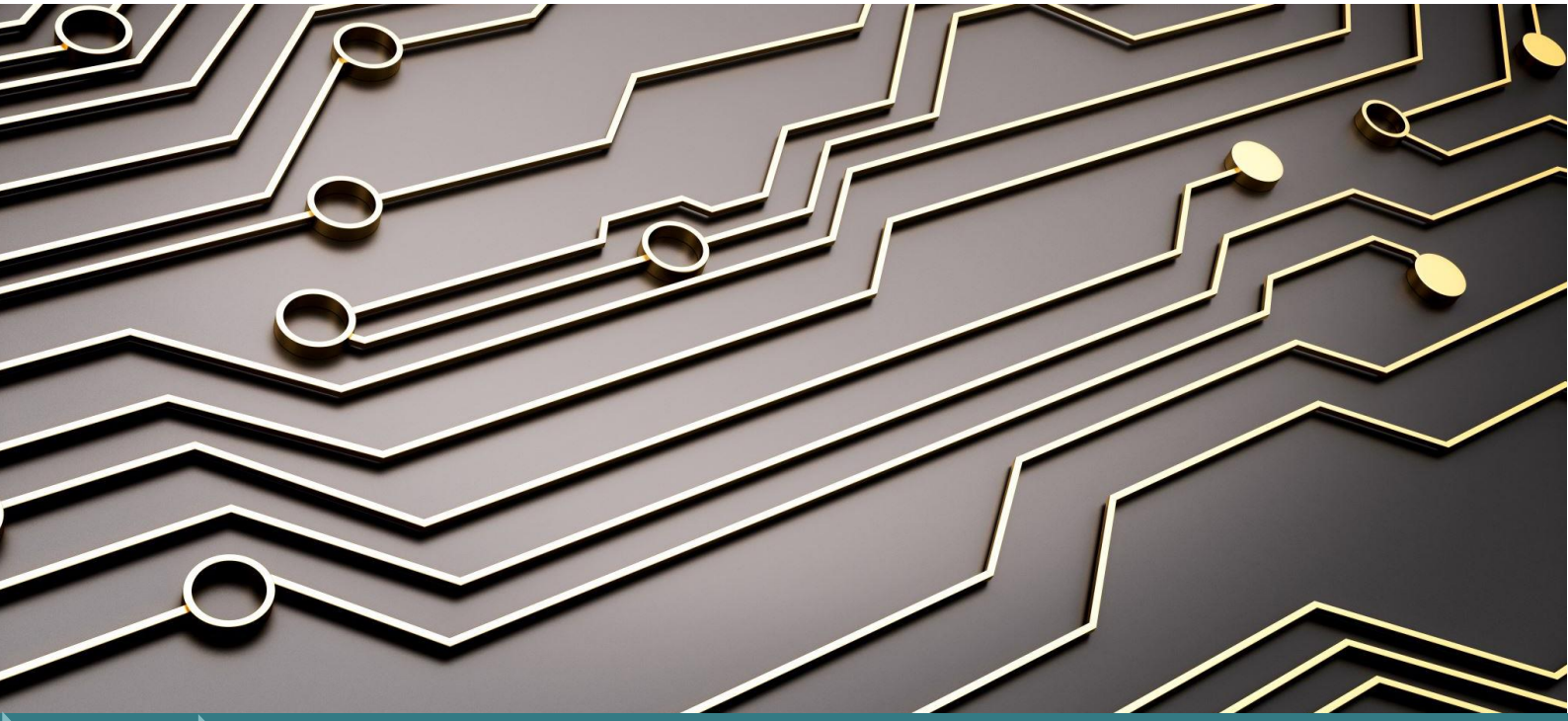
Climate Audit for Advania Group



Methodology and results report

Financial year 2022

March 2023

advania

2050
Fast Forward to a Greener Future

Content

Background

The greenhouse gas protocol

The Greenhouse Gas Protocol is a tool for quantifying and managing greenhouse gas emissions. There are three main categories of emissions: scope 1 includes direct emissions from sources owned or controlled by the organisation and scope 2 includes emissions that are indirectly associated with the organisation's activities, such as those from purchased electricity and steam. Scope 3 includes all emissions that are associated with the activities of the organisation's suppliers, customers, and other third parties. The division of categories between scopes are shown in figure 1 below.

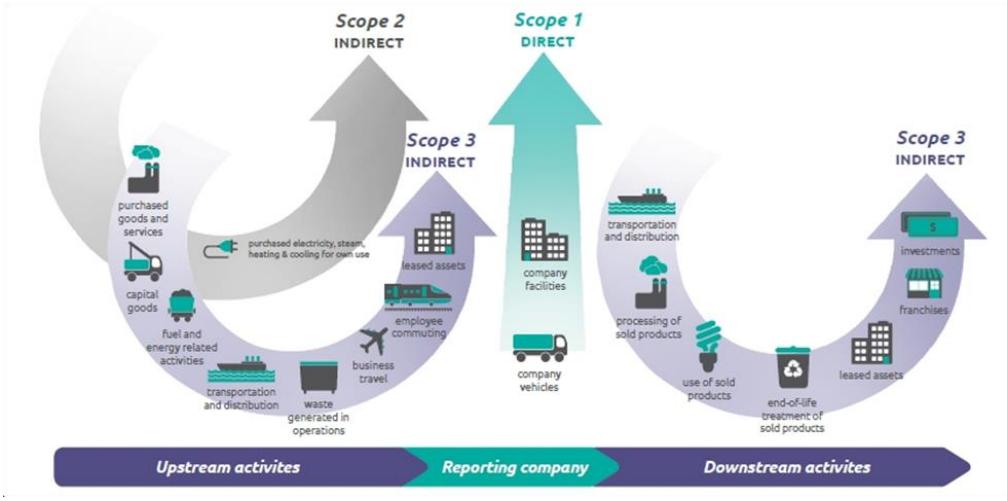


Figure 1. The different scopes and categories included in the GHG protocol.

Control approach

The division of categories into direct and indirect emissions between the scopes depends on the chosen control approach.

- *Financial control approach* – direct GHG emissions are defined as emissions from sources where the company has financial control.
- *Operational control approach* – direct GHG emissions are defined as emissions from sources over which the company has operational control.

For the climate calculations of Advania Group, an **operational control approach** has been applied.

Methods for scope 2 accounting

According to the guidance of the GHG Protocol, there are two distinct methods for scope 2 accounting, where both methods are useful for different purposes. The methods are:

- *Location-based method* – the emission factor is represented by the average emissions intensity of the grid on which the energy consumption occurs. This method does not that into account the origin of the energy.
- *Market-based method* – the emission factor is represented by the electricity sources the company purposefully have chosen. This means that if the company has bought electricity with Guarantees of Origin, the emission factors reflect that. All other electricity represents the remaining electricity production, a so-called residual mix.

In the climate accounting report of Advania Group, a **market-based method** has been applied.

Process description & system boundaries

All calculations are primarily based on actual activity data from Advania Group's operations. The activity data reported from Advania Group have been matched to emission factors to calculate the climate impact from the operations, see more details in the section *Detailed methodology*.

Entities included

In the report for Advania Group FY2022, the following entities are included:

- Advania Sweden (including Advania Sweden, Advania 35, Ibiz, and Hi5)
- Advania Norway (including Advania Norway, Visolit, and Easify)
- Advania Finland (including Advania Finland and DCG)
- Advania Denmark (including Advania Denmark and Cloudio)
- Advania Iceland
- Content + Cloud (including operations in both UK and South Africa. Azzure are excluded)
- Advania Serbia
- Advania Sri Lanka

System boundaries and GHG-scopes

Emissions from Advania Group's operations have been categorized within the various scopes and the GHG protocol's emission categories following the control approach and market-based method.

The scope and categories of the GHG protocol, as well as the activities that all entities must report on for 2022, are listed below.

Scope 1

- Company-operated cars and rental cars (Company operated vehicles)
- Refrigerant leakage (Company facilities and data centers)
- Fuel use (Company facilities)

Scope 2

- Electricity consumption in offices (Purchased electricity for own use)
- Heating (Purchased heating for own use)
- Cooling (Purchased cooling for own use)
- Energy consumption in data centers (Purchased electricity for own use, adjusted for PUE-number to cover energy use)

Scope 3

- Business travel with flight, train, taxi, hotel and other (Business travel)
- Fuel and energy-related activities
- Purchased hardware (Purchased goods and services & parts of Transportation and distribution)

Detailed methodology and assumptions

In this section, the detailed methodology and assumptions made in the respective category are presented.

Business travel

Business travel includes company-operated cars and rental cars (scope 1), flight, train, taxi, and other travel (scope 3), and hotel stays (scope 3).

Emissions from cars are divided into two categories: well-to-tank and tank-to-wheel. Well-to-tank includes emissions from the production and distribution of fuel and falls under scope 3. Tank-to-wheel includes emissions from driving and is included in scope 1. For hybrid cars, where a part of the energy comes from electricity, some of the emissions are placed in scope 2. Advania Group has used company cars, private cars, and rental cars in 2022, all of which are included in the calculations under *company-operated cars and rental cars*. Emissions are largely based on the distance travelled, for others on the amount of fuel used, and in some instances on money spent. Emission factors come from the Swedish Transport Administration (Trafikverket) and the Swedish Energy Agency (Energimyndigheten).

Calculations for flight and train travel are based on passenger kilometres travelled. In cases where emissions have been reported by the Advania Group, these are used. Emission factors come from NTM (Network for Transport Measures). For flights, a Radiative Force Index (RFI) of 2.7 is added. Taxi travel emissions are calculated based on the reported money spent (SEK). The emission factors come from the Taxi Association's (Taxiförbundet) report about the industry's current state, *Branschläget 2021*. The emissions from hotel stays are calculated from the number of nights reported. Emission factors for hotel nights are from Larsson & Kamb (2019), Chalmers University of Technology.

Energy

Detailed data was collected for the Advania Group facilities, recording the consumption and origin of the electricity, heating and cooling.

Emissions from purchased energy include electricity consumption (operational electricity and electricity in the common parts of the facility) for offices, energy consumption in data centers, heating consumption and cooling. Energy fuels are only found in the facilities in Serbia, Manchester and Reading where natural gas is used for heating. The emission factor for natural gas is taken from Energiföretagen (2021).

The emission factors used were specific to the chosen purchased electricity and heating. Emission factors for electricity with Guarantees of Origin were applied from EPDs from Vattenfall. Nordic residual came from Energimarknadsinspektionen (2021). The nordic average for location-based calculations came from IVL's report "*Emissionsfaktor för nordisk elmix med hänsyn till import och export*". The emission factors for electricity in other countries than Nordic countries were taken from IEA (2020, 2017) and AIB (2021, 2018). District heating emission factors origin from Energiföretagen VMK (2021).

Refrigerant leakage

Where data was unavailable, emissions from refrigerant leakage were estimated based on Advania's share of the facility area. It was assumed that all facilities that did not report district cooling or any other type of cooling instead had refrigerant leakage. The calculations for emissions from refrigerants were calculated similarly to previous years.

Purchased hardware

Purchased hardware includes the emissions from the production and transportation of hardware that has been purchased during 2022. Purchased hardware is assumed to be of the same magnitude as sold hardware. The production includes all steps from the raw material extraction to the complete product, the transportation includes all transports from the country of production to Advania. Emissions have been calculated using Advania's tool "Klimatsnurran".

The hardware has been divided into the subcategories *Desktop*, *Laptop*, *Monitor*, *Printer*, *Server*, *Smartphone*, *Tablet, Computer mouse, Router, Headphones,* and *Other hardware*. Other hardware includes e.g., cables, web cameras, and docking stations. For each subcategory, a weighted average production emission factor has been calculated using production phase data of different product carbon footprints (PCF) from suppliers. Where specific PCFs were unavailable, the calculations are based on several PCFs for products similar to those reported by the Advania Group.

The aim was to cover 80% of the products purchased to obtain average values that were as representative as possible. However, some products did not have PCFs available. In these cases, as many products as possible have been included. The average value is weighted based on how many models Advania Group has purchased. Table 1 below presents the proportion of the mean value based on PCFs.

Table 1. The proportion of the mean value based on the production phase in product carbon footprints (PCFs).

Category	Emissions per product kg CO_2e/unit	Share of quantity on which the value is based	Number of PCFs on which the value is based	Comment
Laptop	225,8	65%	51	Based on 51 of the most purchased models
Monitor	319,7	45%	18	Based on 18 of the most purchased models
Desktop	299,4	82%	6	Includes desktops, thin clients, and workstations. The 6 PCFs are from the most purchased models
Printer	376,5	0%	0	No new PCFs were available for Advania Group's models, or compared to last year. Value is based on the same calculations as for 2021, where 17 PCFs were used
Server	757,2	0%	0	No new PCFs were available for Advania Group's models, or compared to last year. Value is based on the same calculations as for 2021, where 18 PCFs were used
Smartphone	52,1	35%	10	Based on 10 of the most purchased products in 2021. No PCFs from other brands than Apple or Samsung were available.
Tablet	61,7	89%	10	Mostly iPads within this category.
Computer mouse	3,7	-	-	Emission factor provided by 2050 Consulting
Headphones	2,8	-	-	Emission factor provided by 2050 Consulting
Router	40,2	-	-	Emission factor provided by 2050 Consulting
Other hardware	3,7	-	-	Emission factor provided by 2050 Consulting. Average of emissions for computer accessories, e.g. cables, keyboards etc. Based on actual data from computer accessories suppliers.

For the calculations of the emissions from transportation, it has been assumed that all products are manufactured in Asia and that 85 % are transported by air freight, while the rest is transported by sea freight and road transport.

Other purchases

Advania Group has partly collected data for the purchases of IT services and provisions. For IT services, calculations were based on the total storage used during 2022, the energy required, and the national electricity grids. The energy intensity of storage was taken from Andrae (2020). Emission factors for electricity with Guarantees of Origin came from EPDs from Vattenfall. Nordic residual came from Energimarknadsinspektionen (2021). The emission factors for electricity in other countries came from IEA (2020, 2017) and AIB (2021, 2018).

Regarding purchased provisions, emission factors come from Löfbergs Lila, FAO of the UN, and the Swedish Agricultural University (SLU).

Results for the Advania Group

This chapter contains a presentation of the results from the climate calculations for the Advania Group in 2022.

Total emissions per category and scope

The total emissions for the included categories are 190 305 tons CO_2e during the fiscal year 2022, or 192 968 tons CO_2e if the voluntary categories are included. Table 2 below displays the emissions within each scope for each category and subcategory.

Note that the voluntary categories consist of partial data only from Iceland, Denmark, Norway, and Serbia.

Table 2. Emissions for Advania Group per category within each scope.

Overview of emissions	Scope 1, ton CO2e	Scope 2, ton CO2e	Scope 3, ton CO2e	Total emissions FY2022, ton CO2e
Business travel	**371**	**4**	**2 477**	**2 851**
Company operated cars and rental cars	371	4	102	477
Flights	-	-	2 256	2 256
Train travel	-	-	12	12
Taxi travel	-	-	16	16
Hotel nights	-	-	90	90
Other	-	-	0,3	0,3
Hardware	**-**	**-**	**183 701**	**183 701**
Desktop	-	-	8 343	8 343
Laptop	-	-	113 651	113 651
Monitor	-	-	36 207	36 207
Printer	-	-	8 536	8 536
Server	-	-	5 898	5 898
Smartphone	-	-	1 446	1 446
Tablet	-	-	3 295	3 295
Other hardware	-	-	6 325	6 325
Energy and fuel use	**1 103**	**2 237**	**413**	**3 752**
Electricity in offices	-	1 298	113	1 411
Electricity in data centers	-	518	236	754
District heating	-	420	50	470
District cooling	-	0,03	10	10
Refrigerants	1 089	-	-	1 089
Fuel use	14	-	3	17
TOTAL	**1 474**	**2 240**	**186 591**	**190 305**
Voluntary categories	**-**	**-**	**2 663**	**2 663**
Purchased IT-services	**-**	**-**	*2*	2
Purchased provisions	**-**	**-**	*397*	397
Distribution	**-**	**-**	*57*	57
Commuting	**-**	**-**	*1 016*	1 016
Waste	**-**	**-**	*6*	6
Emissions from use phase and end-of-life of hardware	**-**	**-**	*1 185*	1 185
TOTAL with voluntary categories	***1 474***	***2 240***	***189 254***	***192 968***

As can be seen in Figure 2 below, emissions from hardware account for a large majority of Advania Group's reported emissions (97 %).

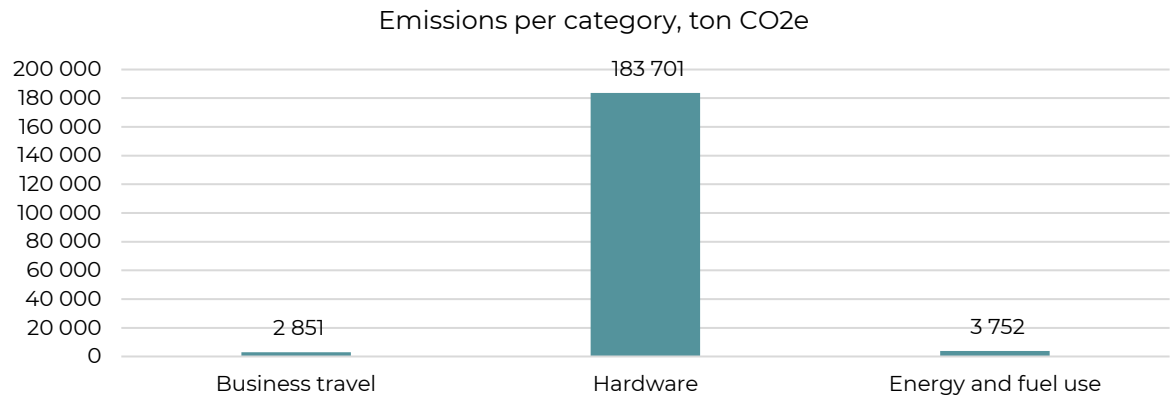


Figure 2. Emissions per category for Advania Group FY2022.

Energy use

Energy use includes electricity in offices and data centers, district heating, district cooling, refrigerants, and fuel use. The total emissions from energy use amount to 3 752 tons CO_2e in 2022. In Figure 3 below, the emissions distributed per category are shown. Here, reported emissions within all the scopes are included.

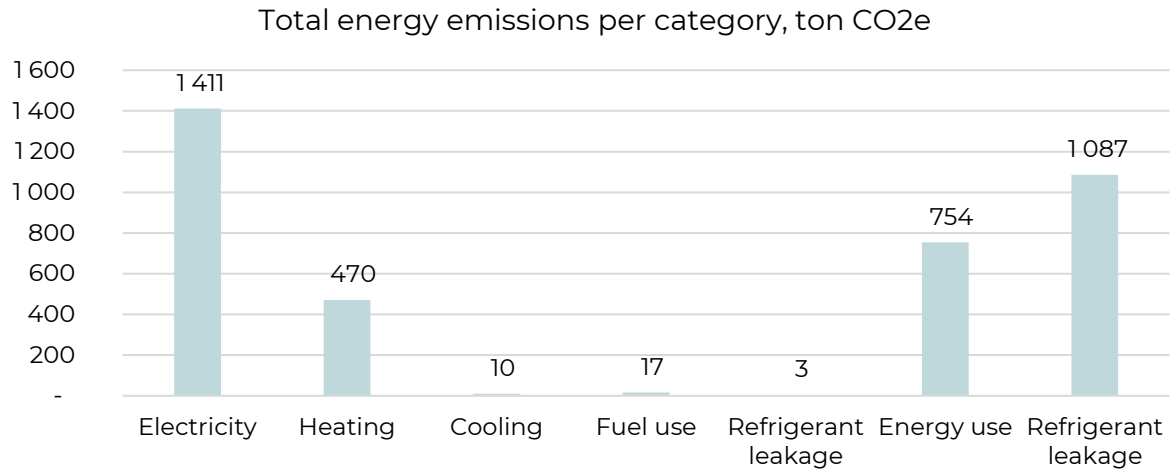


Figure 3. Emissions from energy use, including all scopes.

Around half of the emissions in this category come from energy use in the offices, and the other half from energy use and refrigerant leakage in the data centers. Most of the emissions from the offices come from the electricity and heating used in the facilities, while the cooling, fuel use and refrigerant leakage stand for smaller shares. Regarding the data centers, the majority of the emissions origin from refrigerant leakage, and the rest stems from energy use.

An alternative method of accounting for emissions in scope 2

The calculations have been made using the market-based method, where emission factors reflect the choices of origin the Advania Group has made for its energy use. The alternative to this method is the so-called location-based method, where emission factors represent the average emission intensity of the grid and thus do not take the origins of energy into account.

According to the GHG Protocol, the chosen method for calculating scope 2 emissions should be presented along with the non-chosen method. In Table 3 below, the difference between market-based and location-based methods is presented. The emission factor for the location-based method is based on the average mixes for electricity production in the respective countries.

Table 3. Emissions according to the market-based and location-based methods.

Market-based vs. location-based, 2022	Scope 2 emissions, ton CO_2e	Total emissions, ton CO_2e
Market-based	2 240	190 305
Location-based	2 714	190 778
Difference (MB-LB)	**-474**	**-474**

Business travel

In 2022, the emissions from business travel reached 2 851 tons of CO_2e, which is 1.5 % of Advania Group's total emissions. Most of the emissions in this category come from flights, which stands for around 80 % of the emissions from business travel. The second largest emitter in this category are the company-operated cars and rental cars, while train travel, taxi travel and hotel nights stand for relatively small shares of the emissions from Advania Group's business travel.

Hardware

Emissions from purchased hardware for sales represent 97 % of Advania Group's reported emissions. In 2022, the emissions reached 183 701 tons CO_2e. How emissions are divided between the product categories is displayed in figure 4, together with the number of purchased products.

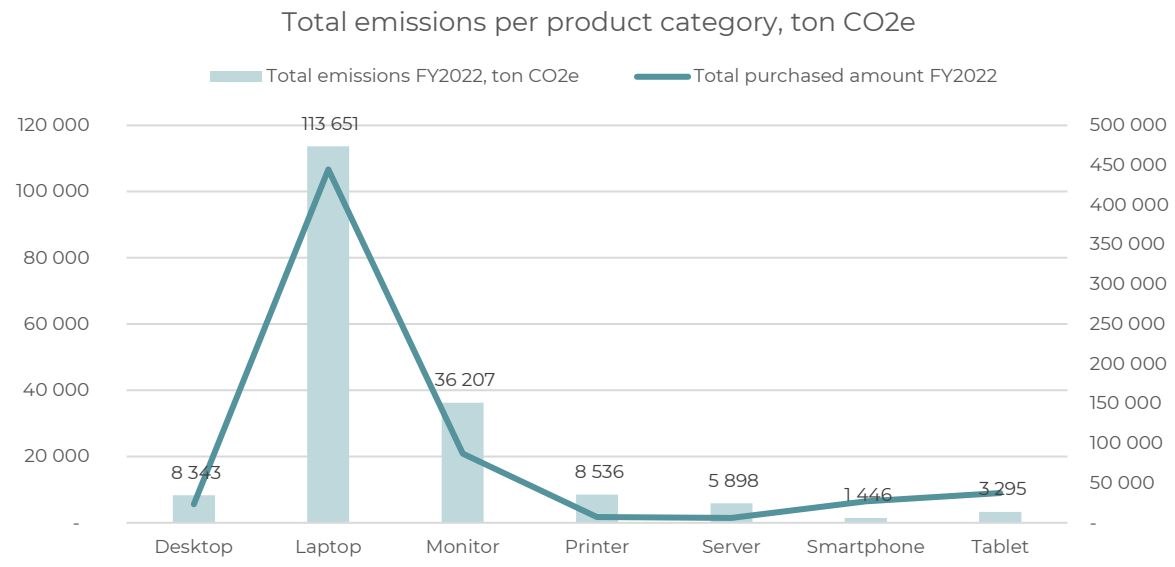


Figure 4. Total emissions by product category during 2022 and the number of purchased hardware.

As shown in *Figure 4* above, emissions are strongly connected to the number of products purchased. There is a difference in emissions per product, as shown in Table 4 below. Tablets and mobile phones have a lower emission per product and servers and printers are a bit higher.

Table 4. Total purchased amount per product, total emissions per product and average emissions per product.

Product category	Total purchased amount FY2022	Total emissions FY2022, ton CO_2e	Average emissions per product FY2022, kg CO_2e/unit
Desktop	23 227	8 343	359,2
Laptop	444 577	113 651	255,6
Monitor	87 128	36 207	415,6
Printer	7 359	8 536	1 160,0
Server	6 090	5 898	968,4
Smartphone	26 797	1 446	54,0
Tablet	37 357	3 295	88,2
Partial sum	*632 535*	*177 376*	-
Computer mouse	100 123	468	4,7
Router	10 938	480	43,9
Headphones	47 748	194	4,1
Other purchased hardware	145 553	5 182	35,6
TOTAL	**936 897**	**183 701**	

Detailed results and methodology per country

Advania Sweden

For Advania Sweden, the total emissions for the fiscal year 2022 are 135 949 tons of CO_2e. 99 % of the emissions come from scope 3, and the absolute majority of the emissions can be found in the category hardware, standing for almost 99 % of the emissions. The energy and fuel use in Advania's facilities and the business travel together stand for around 1% of the emissions. Compared to 2021, the total emissions for Advania Sweden have increased by almost 50 %, and most of this increase can be attributed to hardware since the number of purchased products has increased over the years, resulting in higher emissions.

Results

Table 5 below displays the emissions within each scope for each category and subcategory for Advania Sweden.

Table 5. Emissions per category within each scope for Advania Sweden.

Overview of emissions	Share of total, %	Scope 1, ton CO2e	Scope 2, ton CO2e	Scope 3, ton CO2e	Total emissions, ton CO2e
Business travel	**0,6%**	**167,6**	**3,1**	**581**	**751**
Company operated cars and rental cars	0,2%	167,6	3,1	49,3	220
Flights	0,4%	-	-	486,2	486
Train travel	0,001%	-	-	1,0	1,0
Taxi travel	0,01%	-	-	12,7	12,7
Hotel nights	0,02%	-	-	31,4	31,4
Hardware	**99%**	**-**	**-**	**134 457**	**134 457**
Desktop	4%	-	-	5 377	5 377
Laptop	73%	-	-	99 838	99 838
Monitor	16%	-	-	21 535	21 535
Printer	1,0%	-	-	1 421	1 421
Server	1,7%	-	-	2 257	2 257
Smartphone	0,7%	-	-	969	969
Tablet	1,8%	-	-	2 392	2 392
Other hardware	0,5%	-	-	667	667
Energy and fuel use	**0,5%**	**359,1**	**293**	**89**	**740,9**
Electricity in offices	0,2%	-	240	33	273,3
Energy in data centers	0,03%	-	1	40	41,3
Heating	0,04%	-	51	7	57,9
Cooling	0,01%	-	0	9,2	9,3
Refrigerants	0,264%	359,1	-	-	359,1
Fuel use	0%	-	-	-	-
TOTAL	**100%**	**527**	**296**	**135 126**	**135 949**

In Figure 5 below, the distribution of the Advania Sweden's total emissions between the different companies Advania Sweden, Advania 35, Hi5 and iBiz can be found.

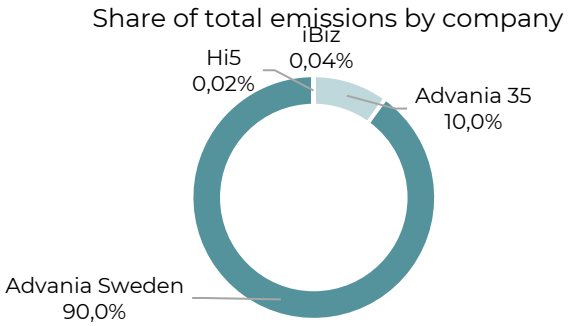


Figure 5. The share of Advania Sweden's emissions per company during 2022.

In table 6 below, the energy consumption of Advania Sweden is presented.

Table 6. The Energy consumption for Advania Sweden, FY2022.

Energy consumption	Total, kWh	Renewable, kWh	Non-renewable, kWh
Energy use	11 051 397	6 261 504	4 789 893
Electricity use	6 823 420	6 179 990	643 430
Electricity use in data centers	4 873 326	4 873 326	-

Specific methodology and assumptions

Advania Sweden reported spent amount on parts of the flights travelled as well as the number of nights in hotels. For flights, a distance has been estimated based on their other reported data. For hotel nights, estimates were based on reports from iBiz and Advania 35. For iBiz, train travels were assumed to have an average travel distance of 200 km.

For data centers, the PUE number has been estimated where unavailable. This estimation was based on those data centers where the PUE number was measured. Additionally, all except one site were unable to report refrigerant leakage. This has been estimated as well, based on the energy used in the data centers and previously reported refrigerant leakage for the Bahnhof data centers.

For the facilities in Uppsala and Västerås, all activity data, i.e. electricity in Advania's share of the facility, the electricity in common parts of the facility, heating and cooling, was estimated. This is because the operations in these facilities are rather small, and no actual data was available. The estimations were made using the area of the facilities as well as reference values. The reference value for electricity in common parts of the facility was based on the values reported by other Advania facilities, while the reference values for electricity consumption in Advania's share of the facility, heating and cooling are general reference values for the consumption in offices from Energimyndigheten.

Furthermore, the operational electricity had to be estimated for the facility in Gävle, and the electricity consumption reported for Luleå was only for a month and was therefore scaled up to represent the consumption of the whole year. Additionally, both electricity in the common parts of the facility and heating had to be estimated for these two facilities.

Refrigerant leakage was estimated where no information regarding cooling was provided, and this was the case for the facilities in Göteborg-Sisjö, Halmstad, Gävle, Karlstad and Luleå.

Brief analysis

As can be seen in Figure 5, Advania Sweden stands for around 90% of Advania Sweden's emissions, while Advania 35 stands for around 10%, and Hi5 and iBiz together stand for less than 1 %. One aspect worth noting regarding the different companies is that even though Advania Sweden has the highest emissions, Advania 35 has higher emissions from energy and fuel use in their facilities, especially when it comes to the electricity in the offices as well as refrigerants. Advania Sweden has higher emissions from business travel, and the real difference between the two companies can be found in hardware where Advania Sweden emissions are almost ten times higher than Advania 35's emissions.

The hardware stands for the absolute majority of Advania Sweden's emissions, which is also the case for Advania Group. In this category, the largest emissions come from laptops, which is reasonable since this is also the product category where most products have been purchased. Within the largest hardware categories, Advania Sweden has increased the purchased amount by 54 % compared to 2021, which explains why the emissions in this category have increased by almost 50 % between the years.

0.6 % of Advania Sweden's emissions come from business travel. However, emissions have increased by four times compared to 2021. The largest increase comes from flights. This can partly be an effect of the pandemic, but a large portion of the flights are less than 1 000 km. To reduce the emissions in this category, Advania Sweden should consider decreasing the number of regional flights and replacing them with alternative modes of transport.

Regarding energy and fuel use, the emissions have increased by four times compared to 2021. The largest increases can be found in electricity in the offices and energy use and refrigerant leakage in the data centers. Almost 75 % of the electricity and heating is renewable, which is a high share, and increasing this share is an effective way of reducing the emissions in this category. The emissions per kWh have decreased in data centers by 30 %.

The data quality for Advania Sweden is generally very high, more than 90 % of the total emissions are based on actual activity data. However, the shares between actual and estimated activity data differ depending on what category is considered. For hardware, practically all activity data is actual data, while for business travel and energy and fuel use, the share of actual data is considerably lower. In the category energy and fuel use, it is worth noting that it is primarily the refrigerant leakage in the data centers that have been estimated, while the data for the offices is almost exclusively actual data.

Advania Denmark

For Advania Denmark, the total emissions for the fiscal year 2022 are 13 007 tons of CO_2e. The largest share of Advania Denmark's emissions comes from hardware, which stands for 99 % of the emissions. The emissions from energy and fuel use in the offices and data centers stand for around 1 %, while business travel stands for less than 0,5 % of Advania Denmark's emissions.

Results

Table 7 below displays the emissions within each scope for each category and subcategory for Advania Denmark.

Table 7. Emissions per category within each scope for Advania Denmark.

Overview of emissions	Share of total, %	Scope 1, ton CO2e	Scope 2, ton CO2e	Scope 3, ton CO2e	Total emissions, ton CO2e
Business travel	**0,3%**	**12**	**-**	**30**	**42**
Company operated cars and rental cars	0,1%	12	-	4	15
Flights	0,2%	-	-	25	25
Taxi travel	0,0001%	-	-	0,01	0,01
Hotel nights	0,01%	-	-	1,6	1,6
Hardware	**99%**	**-**	**-**	**12 853**	**12 853**
Desktop	3%	-	-	394	394
Laptop	13%	-	-	1 633	1 633
Monitor	25%	-	-	3 307	3 307
Printer	35%	-	-	4 526	4 526
Server	17%	-	-	2 253	2 253
Smartphone	1%	-	-	174	174
Tablet	1%	-	-	123	123
Other hardware	3%	-	-	442	442
Energy and fuel use	**0,9%**	**11**	**92**	**9**	**112**
Electricity in offices	0,5%	-	55	5	59
Energy in data centers	0,01%	-	0,04	1	1
Heating	0,3%	-	38	3	41
Cooling	0%	-	-	-	-
Refrigerants	0,1%	11	-	-	11
Fuel use	0%	-	-	-	-
TOTAL	**100%**	**23**	**92**	**12 892**	**13 007**

In figure 6 below the distribution of Advania Denmark's total emissions between the different companies can be found.

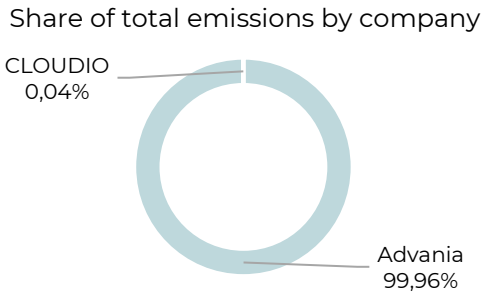


Figure 6. The share of Advania Denmark's emissions per company during 2022.

In table 8 below, the energy consumption of Advania Denmark is presented.

Table 8. The Energy consumption for Advania Denmark, FY2022.

Energy consumption	Total, kWh	Renewable, kWh	Non-renewable, kWh
Energy use	459 753	139 384	320 369
Electricity use	285 905	139 384	146 521
Electricity use in data centers	139 384	139 384	-

Specific methodology and assumptions

The PUE number has been estimated for the data centers in Denmark, based on those data centers within Advania Group where the PUE number was measured. Also, refrigerant leakage has been estimated, based on the energy used in the data centers and previously reported refrigerant leakage for the Bahnhof data centers.

The electricity in common parts of the facility as well as the heating was estimated for both facilities using the areas and reference values. For the Cloudio facility, the estimations were adjusted to account for the fact that only one month of operations is supposed to be included.

Brief analysis

As can be seen in figure 6, CLOUDIO only stands for less than 1 % of Advania Denmark's emissions. Additionally, the largest emitter for CLOUDIO is energy and fuel use, while for Advania Denmark, the largest share of emissions comes from purchased hardware.

The hardware stands for the absolute majority of the emissions looking at Advania Denmark as a whole, which is in line with Advania Group. In this category, monitors constitute the largest emission category, followed by printers, servers, and laptops. While the number of purchased products within the large hardware categories has increased by 17 % compared to 2021, emissions from them have increased by 38 %. This is explained by printers and servers making up a larger share of new purchases.

0.3 % of Advania Denmark's emissions come from business travel. Compared to 2021, emissions from cars have decreased, but emissions from flights have increased. This can partly be an effect of the pandemic.

Despite increased usage, emissions from the data centers have vastly decreased since last year, due to the purchase of renewable energy. Furthermore, the emissions from both

electricity and heating in the offices have increased over the years, and since only 36 % of the electricity and heating is renewable, increasing that share would be an effective way for Advania Denmark to reduce the emissions in this category.

In general, the data quality for Advania Denmark is high, as 66 % of the emissions are based on actual data. Regarding the offices, however, several estimations had to be made for both facilities, which resulted in lower data quality since only around half of the emissions from Advania Denmark's facilities are based on actual activity data. The quality could be improved by collecting more actual data regarding heating and electricity in common areas since both had to be estimated for both facilities.

Advania Norway

For Advania Norway, the total emissions for the fiscal year 2022 are 29 079 tons of CO_2e.

Results

Table 9 below displays the emissions within each scope for each category and subcategory for Advania Norway.

Table 9. Emissions per category within each scope for Advania Norway.

Overview of emissions	Share of total, %	Scope 1, ton CO2e	Scope 2, ton CO2e	Scope 3, ton CO2e	Total emissions, ton CO2e
Business travel	**5%**	**2**	**0,6**	**1 463**	**1 465**
Company operated cars and rental cars	0,01%	2	0,6	1	3
Flights	4,9%	-	-	1 427	1 427
Train travel	0,0005%	-	-	0,1	0,1
Taxi travel	0%	-	-	-	-
Hotel nights	0,1%	-	-	35	35
Other	0%	-	-	-	-
Hardware	**90%**	**-**	**-**	**26 243**	**26 243**
Desktop	7%	-	-	1 907	1 907
Laptop	34%	-	-	9 869	9 869
Monitor	36%	-	-	10 602	10 602
Printer	9%	-	-	2 479	2 479
Server	1%	-	-	346	346
Smartphone	1%	-	-	265	265
Tablet	3%	-	-	766	766
Other hardware	0,03%	-	-	8	8
Energy and fuel use	**4,7%**	**381**	**850**	**141**	**1 371**
Electricity in offices	2,3%	-	618	54	672
Energy in data centers	0,4%	-	42	70	112
Heating	0,7%	-	189	16	205
Cooling	0,001%	-	0,001	0,2	0,2
Refrigerants	1,3%	381	-	-	381
Fuel use	0%	-	-	-	-
TOTAL	**100%**	**383**	**850**	**27 847**	**29 079**

In table 10 below, the energy consumption of Advania Norway is presented.

Table 10. The Energy consumption for Advania Norway, FY2022.

Energy consumption	Total, kWh	Renewable, kWh	Non-renewable, kWh
Energy use	7 214 661	4 914 961	2 299 700
Electricity use	6 651 595	4 914 961	1 736 634
Electricity use in data centers	4 809 905	4 734 905	75 000

Specific methodology and assumptions

For data centers, refrigerant leakage has been estimated, based on those data centers within the Advania Group where the PUE number was measured.

According to information provided by Advania Norway, the facility in Trondheim is a shared coworking space where four of Advania's employees work, but these employees often work from home. The area occupied by the four employees was estimated, and based on this area, all activity data was estimated. Since the employees mostly work from home, the estimation for the electricity in Advania's share of the facility was halved to account for this. All other activity data as estimated using the normal reference values since it is assumed that heating, cooling, and common electricity are on even when the employees work from home.

Furthermore, the methodology for the facility in Tønsberg differs from the others since this facility started in December 2022 and is the result of a merger between two other facilities. To account for this, the actual electricity consumption in Advania's share of the facilities for the two previous locations up until the merger was added to an estimation of the electricity consumption for one month for the new facility. All other activity data was estimated using the areas of the facilities and standard values, and it was then adjusted to reflect the number of months they were in operation.

Regarding the other facilities for Advania Norway, the electricity in common parts of the facility was estimated for the facilities Moss, ODV Oslo and P33 Oslo since no data was available regarding this electricity consumption. Furthermore, heating was estimated for facility P33 Oslo. Moreover, refrigerant leakage was estimated for all facilities where no information regarding cooling was provided. This was the case for Asker, Bergen, Bjørkelangen, Kjellstad, Kongsberg, Moss and Skjetten.

Additionally, it is worth noting that the operational electricity for the facility in Bjørkelangen includes a data center and is therefore rather high for a facility of that size, however, the data center has been closed during 2022 which means that the electricity most likely will be lower next year.

Brief analysis

The hardware stands for the majority of Advania Norway's emissions. It is, however, a smaller portion compared to Advania Group, 90 % and 97 % respectively. This is explained by higher emissions within business travel and energy use, where Advania Norway make up half of Advania Group's emissions within business travel and a third of those within energy use.

Within business travel, 97 % of the emissions come from flights. Of those, 77 % come from regional flights, i.e. flights that are no longer than 1 000 km. Advania Norway can decrease their emissions from business travel drastically by reducing the number of regional flights.

Regarding energy and fuel use, only 69 % of the electricity and heating consumed is renewable, and one way for Advania Norway to decrease the emissions from this category is to increase the share of renewables in both the offices and the data centers.

For hardware, emissions have increased compared to 2021, in line with the purchased amount.

The general data quality for Advania Norway is very high, as more than 90 % of the emissions are based on actual activity data. Regarding the facilities, both offices and data centers, estimations had to be made for several facilities since the consumption figures were unknown in many cases. In other words, there is room for improvement when it comes to the data quality of the facilities belonging to Advania Norway.

Advania Finland

For Advania Finland, the total emissions for the fiscal year 2022 are 3 644 tons of CO_2e.

Results

Table 11 below displays the emissions within each scope for each category and subcategory for Advania Finland.

Table 11. Emissions per category within each scope for Advania Finland.

Overview of emissions	Share of total, %	Scope 1, ton CO2e	Scope 2, ton CO2e	Scope 3, ton CO2e	Total emissions, ton CO2e
Business travel	**1%**	**9**	**-**	**29**	**38**
Company operated cars and rental cars	0,3%	9	-	3	12
Flights	0,6%	-	-	21	21
Train travel	0,04%	-	-	1,5	1,5
Taxi travel	0,03%	-	-	1	1
Hotel nights	0,1%	-	-	2	2
Other	0,01%	-	-	0,2	0,2
Hardware	**84%**	**-**	**-**	**3 078**	**3 078**
Desktop	7%	-	-	273	273
Laptop	38%	-	-	1 385	1 385
Monitor	15%	-	-	544	544
Printer	2%	-	-	70	70
Server	20%	-	-	741	741
Smartphone	1%	-	-	34	34
Tablet	0,1%	-	-	3	3
Other hardware	1%	-	-	28	28
Energy and fuel use	**14%**	**261**	**183**	**83**	**527**
Electricity in offices	2%	-	73	7	80
Energy in data centers	2%	-	2	66	68
Heating	3%	-	108	9	117
Cooling	0,01%	-	0,002	0,5	0,5
Refrigerants	7%	261	-	-	261
Fuel use	0%	-	-	-	-
TOTAL	**100%**	**270**	**183**	**3 191**	**3 644**

In figure 7 below the distribution of Advania Finland's total emissions between the different companies can be found.

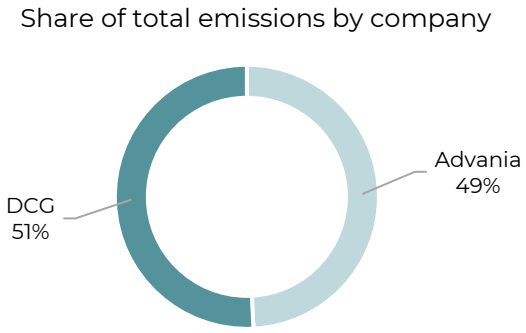


Figure 7. The share of Advania Finland's emissions per company during 2022.

In table 12 below, the energy consumption of Advania Finland is presented.

Table 12. The Energy consumption for Advania Finland, FY2022.

Energy consumption	Total, kWh	Renewable, kWh	Non-renewable, kWh
Energy use	4 315 845	3 686 745	629 100
Electricity use	3 866 532	3 670 055	196 476
Electricity use in data centers	3 506 632	3 506 632	-

Specific methodology and assumptions

Regarding business travel, much of Advania Finland's travels are based on the spent amount. Assumptions have been made concerning the distances travelled. For Advania Finland, the number of nights spent at hotels has been estimated based on spend and DCG's reports.

The PUE number has been estimated for DCG's data centers. Refrigerant leakage has been estimated for four of the five data centers, where data was not available. This estimation was based on those data centers within Advania Group where the PUE number was measured.

For the facility in Lahti, all activity data (electricity in Advania's part of the facility, the electricity in the common parts of the facility, heating, and cooling) had to be estimated due to a lack of data. The estimations were based on the area for the facility provided by Advania Finland and reference values based on data from other facilities within Advania Group and standard values from Energimyndigheten.

Furthermore, both the electricity in common parts of the facility and heating had to be estimated for the facilities in Jyväskylä and Kuovola, while the electricity in common parts was estimated for the facilities Kalasatama and Tower – Keilaniemi due to lack of data. Additionally, refrigerant leakage was estimated for all facilities where no information regarding cooling was available, namely Jyväskylä, Kuovola, Kuopio, Savonlinna, and Sinimäentie. The estimations were adjusted to account for the fact that only 7 months of operations should be included for the facilities belonging to Finland - DCG.

Brief analysis

As can be seen in figure 7, DCG stands for about half of the emissions from Advania Finland, while Advania stands for the remaining emissions. Even though the emissions of the two companies are similar, the distribution of emissions differs. For Advania, the absolute majority of emissions can be found in the hardware category, while both energy and fuel use and business travel are much smaller categories. For DCG, the emissions from hardware are still the largest, but the emissions from energy and fuel use make up a larger share for DCG than for Advania.

For Advania Finland as a whole, most of the emissions come from the category hardware, which is also the case for Advania Group. Within this category, the largest share of emissions comes from laptops, followed by servers, monitors and desktops. Compared to 2021, the emissions have increased by 80 %, and this is in line with the increase in purchased products between the years.

The second largest category is energy and fuel use, where most of the emissions come from refrigerant leakage in the data centers. Business travel only stands for 1% of Advania Finland's emissions, and within this category, most emissions come from flights and company cars.

The data quality for Advania Finland is generally high, as almost 80 % of the emissions are based on actual activity data. However, it is worth noting that the share of emissions based on actual data differs between the different categories. The data quality for hardware and the offices is high, while several estimations were made where data was lacking for both business travel and data centers.

Advania Iceland

For Advania Iceland, the total emissions for the fiscal year 2022 are 6 749 tons of CO_2e. This value includes only the mandatory categories that are compared to other Advania companies. Including optional categories, the total emissions are 8 574 CO_2e.

Advania Iceland has performed most CO_2e emission calculations themselves (for further details, please see *Specific methodology and assumptions* below).

Results

Table below displays the emissions within each scope for each category and subcategory for Advania Iceland.

Table 13. Emissions per category within each scope for Advania Iceland.

Overview of emissions	Share of total, %	Scope 1, ton CO2e	Scope 2, ton CO2e	Scope 3, ton CO2e	Total emissions, ton CO2e
Business travel	**4%**	**157**	**-**	**119**	**276**
Company operated cars and rental cars	3%	157	-	40	197
Flights	1%	-	-	76	76
Taxi travel	0,01%	-	-	0,5	0,5
Hotel nights	0,03%	-	-	2	2
Hardware	**95%**	**-**	**-**	**6 391**	**6 391**
Desktop	6%	-	-	392	392
Laptop	8%	-	-	541	541
Server	4%	-	-	293	293
Tablet	0%	-	-	9	9
ATM	4%	-	-	298	298
Self-checkout lanes	1%	-	-	65	65
Other hardware	71%	-	-	4 793	4 793
Energy and fuel use	**1,4%**	**-**	**34**	**49**	**83**
Electricity in offices	0,1%	-	0	0,03	0,03
Electricity in data centers	0,5%	-	-	34	34
District heating	0,7%	-	34	15	49
Refrigerants	0%	-	-	-	-
Fuel use	0%	-	-	-	-
TOTAL	**100%**	**157**	**34**	**6 558**	**6 749**

** The category "Other hardware" partly includes several sub-categories as 2050 was not able to further categorise the products, partly includes products where 2050 has not obtained data including product category for all units.*

In table 14 below, the energy consumption of Advania Iceland is presented.

Table 14. The Energy consumption for Advania Iceland, FY2022.

Energy consumption	Total, kWh	Renewable, kWh	Non-renewable, kWh
Energy use	7 458 476	6 000 304	1 458 172
Electricity use	2 345 201	2 166 969	178 232
Electricity use in data centers	1 492 232	1 314 000	178 232

Specific methodology and assumptions

Advania Iceland has performed most calculations of emissions themselves. Thereafter, 2050 has verified the calculations made to ensure consistency in methodology throughout the climate audit for Advania Group. However, please note that 2050 has not been able to verify Advania Iceland's calculation of emissions from road transportation (approximately 0,5 tons of CO_2e included in voluntary emission categories).

In 2022 Advania Iceland started using the platform *Klappir* for the collection and analysis of their emission in several categories, which has strengthened the process for handling data and calculating emissions.

Actual activity data has been used as a basis for the majority of CO_2e calculations, mostly using Klappir. Estimates have primarily been used to calculate emissions from purchased hardware, where estimated emissions account for 21% of Advania Iceland's total CO_2e for 2022.

Furthermore, there were changes in the methodology for calculating emissions from purchased hardware for 2022, e.g. additional product categories were included due to access to more data, hence, 143 387 units were covered by the calculations compared to 12 702 units in 2021.

Also, additional data centers were included in 2022 compared to when collecting kWh was used in data centers. In 2021, only major data centers were included.

Brief analysis

In the following section, all comparisons are made between the CO_2e emissions for 2022, mainly calculated by Advania Iceland, and CO_2e emissions for 2021, calculated by 2050, unless otherwise stated.

Advania Iceland's scope 1 emissions decreased by 17% compared to 2021, due to no refrigerants being refilled during 2022, accounting for 12%, and lower emissions from cars operated by the company, accounting for 5%. Furthermore, Advania Iceland's scope 2 emissions increased due to district heating being included, accounting for 79% of the scope 2 emissions for 2022.

Advania Iceland's total CO_2e emissions increased by 47% compared to the fiscal year 2021. The increase can mainly be explained by increased scope 3 emissions from purchased hardware, where the emissions were 48% higher in 2022 compared to 2021 (2 087 tons). The increase in emissions from purchased hardware can be explained by changes in methodology rather than increased actual emissions (please see *Specific methodology and assumptions* above for further details).

Furthermore, regarding scope 3 emissions, a smaller part of the increase can also be explained by an increase in business travel by flight as emissions from flights increased by 206% compared to 2021 (51 tons). The scope 3 emissions increased additionally due to additional data centers being included when calculating used kWh in data centers. Furthermore, the data centers included in 2021 were located in Iceland, while some of the additional data centers are located outside of Iceland where the CO_2e emissions per kWh are estimated to be higher due to a residual mix with less renewable energy.

The total change in scope 3 emissions compared to 2021 was 49%.

C+C

For C+C, the total emissions for the fiscal year 2022 are 1 634 tons of CO_2e.

Results

Table 15 below displays the emissions within each scope for each category and subcategory for C+C.

Table 15. Emissions per category within each scope for C+C.

Overview of emissions	Share of total, %	Scope 1, ton CO2e	Scope 2, ton CO2e	Scope 3, ton CO2e	Total emissions, ton CO2e
Business travel	**16%**	**23**	**0,1**	**240**	**263**
Company operated cars and rental cars	2%	23	0,1	6	29
Flights	13%	-	-	206	206
Train travel	1%	-	-	9,3	9,3
Taxi travel	0,1%	-	-	2	2
Hotel nights	1%	-	-	17	17
Other	0,01%	-	-	0,1	0,1
Hardware	**38%**	**-**	**-**	**613**	**613**
Desktop	0%	-	-	-	-
Laptop	23%	-	-	372	372
Monitor	10%	-	-	168	168
Printer	2,5%	-	-	41	41
Server	0,4%	-	-	7	7
Smartphone	0,03%	-	-	0,5	0,5
Tablet	0,1%	-	-	2	2
Other hardware	1,5%	-	-	24	24
Energy and fuel use	**46%**	**86**	**632**	**40**	**757**
Electricity in offices	11%	-	159	13	172
Energy in data centers	30%	-	473	25	497
Heating	0%	-	-	-	-
Cooling	0%	-	-	-	-
Refrigerants	5%	77	-	-	77
Fuel use	1%	8	-	2	10
TOTAL	**100%**	**109**	**632**	**893**	**1 634**

In table 16 below, the energy consumption of C+C is presented.

Table 16. The Energy consumption for C+C, FY2022.

Energy consumption	Total, kWh	Renewable, kWh	Non-renewable, kWh
Energy use	2 008 682	82 293	1 926 389
Electricity use	1 452 824	82 293	1 370 531
Electricity use in data centers	976 784	-	976 784

Specific methodology and assumptions

Travels by train, bus, and subway were estimated based on the spent amount. For the train, it was assumed that the average trip went between Heathrow and Paddington. For bus and subway, one trip was assumed to be 20 km.

Of the nine data centers, information regarding operational electricity usage and PUE number was available in only two. For the rest, the electricity usage was estimated based on the reported use of the others. Additionally, refrigerant leakage was estimated for all the data centers, based on the energy used in the data centers and previously reported refrigerant leakage for the Bahnhof data centers.

The electricity in common parts of the facility was estimated for the facilities in South Africa, Cardiff, London, and Reading since no data was available. It was estimated using the areas of the facilities and standard values for electricity consumption in common areas. The estimations for the Cardiff facility were adjusted to reflect the fact that it was only in operation for four months in 2022. Furthermore, heating was assumed to be included in the reported electricity consumption for the facilities in South Africa, Cardiff, London, and the Mirus facility. Additionally, refrigerant leakage was estimated for the facilities where no information regarding this was available, namely the South Africa and Cardiff facilities.

Brief analysis

C+C stands out compared to most of Advania Group, as the emissions from purchased hardware only stand for 35 % of their emissions. This is however not due to comparatively large emissions from business travel and energy use, but more due to lower amounts of purchases.

Regarding energy use, it should be noted that C+C do not have information on the origin of the energy used. As per the GHG Protocol standards, the residual mix is therefore assumed. By collecting information on the energy sources, and replacing them with renewable alternatives, C+C can decrease their emissions greatly.

Within business travel, C+C can look into replacing the fuel used with biofuels for a quick decrease in emissions from cars. For future cars, electric or hybrid cars are preferable. The largest emissions in this category are however from flights. Many of the flights are however made between cities within the British islands. Replacing these journeys with e.g. trains would have a great effect on C+C's overall emissions.

The data quality for C+C is in general relatively high, and around two-thirds of the emissions are based on actual activity data. Regarding the offices, several estimations had to be made, and there is a potential for improvement considering this aspect. Looking at the facilities in the UK and the facility in South Africa separately, the share of emissions based on actual activity data is slightly higher for the UK facilities (79 %) compared to the South Africa facility (73 %). Additionally, several estimations were made for the data centers, which lowers the data quality. There is in other words potential for improvement regarding the data collection for both the offices and data centers.

Advania Serbia

For Advania Serbia, the total emissions for the fiscal year 2022 are 76 tons of CO_2e.

Results

Table 17 below displays the emissions within each scope for each category and subcategory for Advania Serbia.

Table 17. Emissions per category within each scope for Advania Serbia.

Overview of emissions	Share of total, %	Scope 1, ton CO2e	Scope 2, ton CO2e	Scope 3, ton CO2e	Total emissions, ton CO2e
Business travel	**4%**	**-**	**-**	**3**	**3**
Company operated cars and rental cars	0%	-	-	-	-
Flights	4%	-	-	3	3
Hardware	**67%**	**-**	**-**	**51**	**51**
Laptop	10%	-	-	8	8
Monitor	55%	-	-	42	42
Smartphone	2%	-	-	1	1
Energy and fuel use	**29%**	**5**	**16**	**1**	**22**
Electricity in offices	21%	-	16	-	16
Refrigerants	0%	-	-	-	-
Fuel use	8%	5	-	1	6
TOTAL	**100%**	**5**	**16**	**55**	**76**

In table 18 below, the energy consumption of Advania Serbia is presented.

Table 18. The Energy consumption for Advania Serbia, FY2022.

Energy consumption	Total, kWh	Renewable, kWh	Non-renewable, kWh
Energy use	51 455	-	51 455
Electricity use	20 753	-	20 753
Electricity use in data centers	-	-	-

Specific methodology and assumptions

Since no information regarding the electricity in common parts of the facility was available, this was estimated using the reported area for the facility and reference values for electricity consumption in common parts. Furthermore, no information regarding natural gas usage was available, and therefore an average of the consumption of natural gas per square meter based on data reported by other facilities was used.

Brief analysis

The hardware stands for the largest share of the emissions from Advania Serbia, 67 %, while 29 % of the emissions come from energy and fuel use, and the rest from business travel. Within hardware, monitors have the largest emissions, followed by laptops and smartphones. In the category energy and fuel use, the largest share of emissions comes from electricity consumption in the offices, and to reduce the emissions from this category, Advania Serbia could consider switching to renewable electricity in their facility.

In general, a large share of the emissions from Advania Serbia is based on actual activity data. For hardware and business travel, practically all data that is used to calculate the emissions is actual data. Regarding the office, estimations were made for a large share of the activity data, and only around 40% of the emissions are based on actual activity data. This could be improved by collecting actual data regarding the natural gas consumption as well as the electricity in the common areas of the facility.

Advania Sri Lanka

For Advania Sri Lanka, the total emissions for the fiscal year 2022 are 166 tons of CO_2e.

Results

Table 19 below displays the emissions within each scope for each category and subcategory for Advania Sri Lanka.

Table 19. Emissions per category within each scope for Advania Sri Lanka.

Overview of emissions	Share of total, %	Scope 1, ton CO2e	Scope 2, ton CO2e	Scope 3, ton CO2e	Total emissions, ton CO2e
Business travel	**8%**	**-**	**-**	**13**	**13**
Company operated cars and rental cars	0%	-	-	-	-
Flights	8%	-	-	13	13
Hardware	**9%**	**-**	**-**	**15**	**15**
Laptop	2%	-	-	4	4
Monitor	6%	-	-	10	10
Smartphone	1%	-	-	1	1
Energy and fuel use	**83%**	**-**	**138**	**0,8**	**138**
Electricity in offices	83%	-	138	0,5	138
Cooling	0,2%	-	0,001	0,3	0,3
Refrigerants	0%	-	-	-	-
Fuel use	0%	-	-	-	-
TOTAL	**100%**	**-**	**138**	**29**	**166**

In table 20 below, the energy consumption of Advania Sri Lanka is presented.

Table 20. The Energy consumption for Advania Sri Lanka, FY2022.

Energy consumption	Total, kWh	Renewable, kWh	Non-renewable, kWh
Energy use	489 580	181 243	308 337
Electricity use	449 000	181 243	267 757
Electricity use in data centers	-	-	-

Specific methodology and assumptions

Since no information regarding the electricity in common parts of the facility was available, this was estimated using the reported area for the facility and reference values for electricity consumption in common parts.

Brief analysis

The majority of Advania Sri Lanka's emissions, 83 %, come from energy and fuel use, while the remaining emissions are split equally between business travel and hardware. This distribution differs from the results for Advania Group and most of the other countries, where hardware stands for the largest share of their emissions. Most emissions from Advania Sri Lanka come from the electricity consumption in their office, and to reduce the emissions, Advania Sri Lanka could increase the share of renewable electricity used in the facility.

The data quality is generally very high for all categories, and more than 90% of the emissions are based on actual activity data.

Analysis

The financial year 2022 is the second year that the Advania Group concludes a climate audit. The total emissions are 192 977 tons CO_2e (including the voluntary categories), of which the majority (98 %) are in scope 3. The main source of emissions is production and transport emissions for hardware, which stands for 97 % of all emissions.

In 2021, the total emissions were 126 916 tons CO_2e. During 2022, the Advania Group acquired several businesses, which makes comparisons difficult.

Within hardware, laptops are the product category contributing the most to Advania Group's emissions (62 % of hardware emissions), however, this is related to the fact that this is the product with the highest purchased quantity for 2022 (47 % of the total quantity, including smaller electronic devices). The highest emissions per product are from servers, but this is also the category that contains the most uncertainties in the underlying data.

In general, the aim for hardware is that the average values for the product categories are based on as many Advania Group products within the category as possible, with a share of at least 80% being preferable. Of all the product categories, only two reach 80 % (desktops and tablets). It may seem that this is out of the Advania Group's control, but by working together and supporting suppliers in their sustainability work, the underlying data can be improved, significantly improving the accuracy of the Advania Group's carbon footprint. In addition, working with other players in the industry and raising awareness of the large emissions that hardware produces can help reduce emissions across the value chain.

The second-largest category of emissions is energy and fuel use which stands for 2 % of the emissions for the Advania Group. Of these, approximately half come from facilities and half from data centers. It is worth noticing that 29 % of the emissions within energy use comes from refrigerant leakage in the data centers, which are almost exclusively estimated. Overall, 52 % of emissions are estimated within energy use, which means that data quality can be improved significantly. Furthermore, it is important to recognize this in order to not draw too big conclusions. Interestingly, the average emissions are 233 g CO_2e/kWh for the offices' electricity, while it is 48 g CO_2e/kWh for the data centers. Renewable energy is used to a larger extent in data centers which can be improved for offices.

In 2021, the main category within business travel was company-operated cars. For 2022, this has changed to flights (79 %). This could partly be an effect of the pandemic, as the opening of society has increased on-site visits. However, 65 % of the emissions from flights come from trips that are less than 1 000 km (of these, about 15 % are estimated). These trips not only have larger emissions per kilometre than longer trips, but they are also often replaceable with other modes of transport, e.g. train. For company-operated cars, the Advania Group can keep working with:

- Replacing fossil-based fuels with alternatives with lower climate impact, such as electric cars or biofuels
- Reducing the amount travelled by car for employees

Overall, the Advania Group has come a long way regarding their climate accounting and reporting, with 96 % of the calculated emissions coming from measured data. This includes both emissions within their control (scope 1 and 2) as well as outside of their control (supply chain in scope 3). This gives a solid foundation to build upon in future climate work.

Energy mapping

According to the Global Reporting Initiative (GRI) standard for energy mapping, a company should, in addition to the emission report, inform on the energy consumption both within and outside of its own business. Here, the methodology is presented along with the results from the energy mapping completed for the reported emission categories.

Methodology

The energy mapping includes the total use of energy used for business travel, electricity use, heating, and cooling. For the use of electricity, heating, and cooling, the energy mapping is based on the reported energy use from each office and data center.

The energy mapping for Advania's business travels comes from the reported data, either in the form of kilometres travelled (km), the amount of fuel used (litres), money spent (SEK), or the number of nights at hotels. An energy factor (kWh/km), as offered by the Network of Transport Measures[1] (NTM), has been used for train travel and flights. Travel by car (both company-operated cars and taxis) has an energy factor (J/litres) from the Swedish Energy Agency (Energimyndigheten). Relevant conversion factors were used to change units to cover all data points.

Results for energy mapping

Table 21 below shows the results of the energy mapping, divided by reported emission categories.

Table 21. Energy use within each category is presented in kilowatt-hours (kWh) and joules (MJ).

Emission category	Energy consumption 2022 [kWh]	Energy consumption 2022 [MJ]
Business travel	**4 534 117**	**16 322 820**
Company-operated cars and rental cars	1 581 845	5 694 641
Flights	2 790 565	10 046 034
Train travel	106 967	385 081
Taxi travel	42 107	151 584
Other	12 633	45 479
Energy consumption	**28 515 732**	**102 656 635**
Electricity in offices	6 096 967	21 949 080
- facility electricity	*1 404 281*	*5 055 412*
- operational electricity	*3 839 717*	*13 822 980*
- Iceland's electricity is not specified	*852 969*	*3 070 688*
Energy in data centers	*15 798 263*	56 873 748
Heating	5 945 721	21 404 596
Cooling	608 570	2 190 854
Fuel use	66 210	238 357
Other emissions		
Refrigerant leakage in offices	N/A	N/A
Refrigerant leakage in data centers	N/A	N/A
Purchased hardware	N/A	N/A
TOTAL	**33 049 848**	**118 979 454**

[1] For more information regarding NTM and their data points, please visit their website (link).

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