Carbon Accounting Report 2021

AutoStore AS

This report provides an overview of the organisation's greenhouse gas (GHG) emissions, which is an integrated part of the organisation's climate strategy. Carbon accounting is a fundamental tool in identifying tangible measures to reduce GHG emissions. The annual carbon accounting report enables the organisation to benchmark performance indicators and evaluate progress over time.

This report comprises the following organisational units: AutoStore AS

The input data is based on consumption data from internal and external sources, which are converted into tonnes CO_2-equivalents (tCO_2e). The carbon footprint analysis is based on the international standard; *A Corporate Accounting and Reporting Standard*, developed by the Greenhouse Gas Protocol Initiative (GHG Protocol). The GHG Protocol is the most widely used and recognised international standard for measuring greenhouse gas emissions and is the basis for the ISO standard 14064-I.

Reporting Year Energy and GHG Emissions

Emission source	Description	Consumption	Unit	Energy (MWh)	Emissions tCO_2e	% share
Transportation total				**79.2**	**17.8**	**-**
Diesel (NO)		2,434.0	liters	25.3	5.1	-
Petrol (E5)		3,400.0	liters	32.4	7.6	-
Diesel (B7)		2,026.0	liters	21.5	5.1	-
Scope 1 total				**79.2**	**17.8**	**-**
Electricity total				**1,466.8**	**593.6**	**0.2 %**
Electricity USA		68,677.6	kWh	68.7	26.4	-
Electricity Nordic mix		575,747.1	kWh	575.7	17.8	-
Electricity Poland		822,382.0	kWh	822.4	549.4	0.1 %
District heating general total				**441.7**	**125.2**	**-**
District heating Poland mix		441,694.0	kWh	441.7	125.2	-
Scope 2 total				**1,908.5**	**718.8**	**0.2 %**
Business travel total				**-**	**397.1**	**0.1 %**
Domestic, RF		1,308,530.0	pkm	-	321.8	0.1 %
Continental/Nordic, incl. RF		145,220.0	pkm	-	22.3	-
Intercontinental, RF		228,843.0	pkm	-	44.2	-
Car, petrol (avg.)		96.0	liters	-	0.2	-
Car, diesel (avg.)		95.0	liters	-	0.3	-
Hotel nights, world		187.0	nights	-	8.4	-
Purchased goods and services total				**-**	**371,517.4**	**99.7 %**
Aluminium, recycled		8,173,230.0	kg	-	3,727.8	1.0 %
Steel, stainless		318,435.0	kg	-	1,337.4	0.4 %
Brass		13,768.0	kg	-	76.4	-
Plastic avg. (virgin)	Rubber	2,897.0	kg	-	9.0	-
Plastic avg. (virgin)		116,307,130.0	kg	-	362,447.9	97.3 %
Copper, recycled		4,200.0	kg	-	0.1	-
PCB		23,895.0	kg	-	936.7	0.3 %
Other material inputs		77,571.5	$kgCO_2e$	-	77.6	-
Cable, unspecified		16,565.0	kg	-	95.0	-
Batteries Li-ion		362,190.0	kg	-	2,284.7	0.6 %
Wood material, virgin		1,678,600.0	kg	-	524.7	0.1 %
Waste total				**-**	**9.7**	**-**
Paper waste, recycled		21,610.0	kg	-	0.5	-
Plastic waste, incinerated		3,720.0	kg	-	8.8	-
Glass waste, recycled		1,320.0	kg	-	-	-
Industrial waste, recycled	Wood	15,390.0	kg	-	0.3	-
Industrial waste, recycled	Insulation materials	160.0	kg	-	-	-
Plastic waste, recycled		1,780.0	kg	-	-	-
Metal waste, recycled	Aluminium	2,243.0	kg	-	-	-
Scope 3 total				**-**	**371,924.3**	**99.8 %**
Total				**1,987.7**	**372,660.9**	**100.0 %**
KJ				**7,155,778,464.0**		

Reporting Year Market-Based GHG Emissions

Category	Unit	2021
Electricity market-based	tCO_2e	831.4
Scope 2 market-based	tCO_2e	956.6
Total market-based	tCO_2e	372,898.7

AutoStore Carbon Accounting 2021

In 2021, AutoStore had total greenhouse gas emissions of 372,660.9 tons of CO2 equivalents (tCO_2e). AutoStore is reporting on its carbon footprint for the first year. However, historical data from the 2020 ESG report is included. The data included in this year's carbon accounting is from offices in Norway, Poland and US and factory in Poland.

The carbon emissions in 2021 are distributed by:

- 17.8 tCO_2e in Scope 1 (less than 0.1 % of total emissions)
- 718.8 tCO_2e in Scope 2 (0.2 % of total emissions)
- 371,924.3 tCO_2e in Scope 3 (99.8 % of total emissions)

Scope 1

Actual consumption of fossil fuels in the company's vehicles. Total fuel consumption from AutoStores company-owned cars corresponds to the emission of 17.8 tCO_2e. Total consumption of diesel in 2021 is 4460 liters and 3400 liters petrol.

Scope 2

Electricity: Measured use of electricity in company-owned or leased locations. The table shows GHG emissions from electricity calculated with the location-based emission factors for Norway, Poland and the US. The overall emissions from electricity in 2021 is 593.6 tCO_2e.

Electricity with a market-based emission factor is presented at the top of page 3 in this report. AutoStore did not purchase Guarantees of Origins or Renewable Energy Certificates for their electricity use in 2021. Therefore, location-based emission factors are used. In 2021 market-based emissions were 769.4 tCO_2e. The purpose of presenting the emissions from electricity consumption with two different emission factors is further explained under Scope 2 in Method.

District heating: Use of district heating in company-owned or leased locations. The emissions from district heating were 125.2 tCO_2e in 2021.

Scope 3

Purchased goods and services: Emissions from the production of products purchased or acquired by the reporting company in the reporting year. Total emissions from purchased goods and services are 371,517.4 tCO_2e in 2021, 99.7 % of total GHG emissions in 2021.

Waste: Reported waste in kilo divided into different waste fractions, as well as treatment methods (recycled, energy recovered, landfilled). Emissions from waste from the offices are 9.7 tCO_2e.

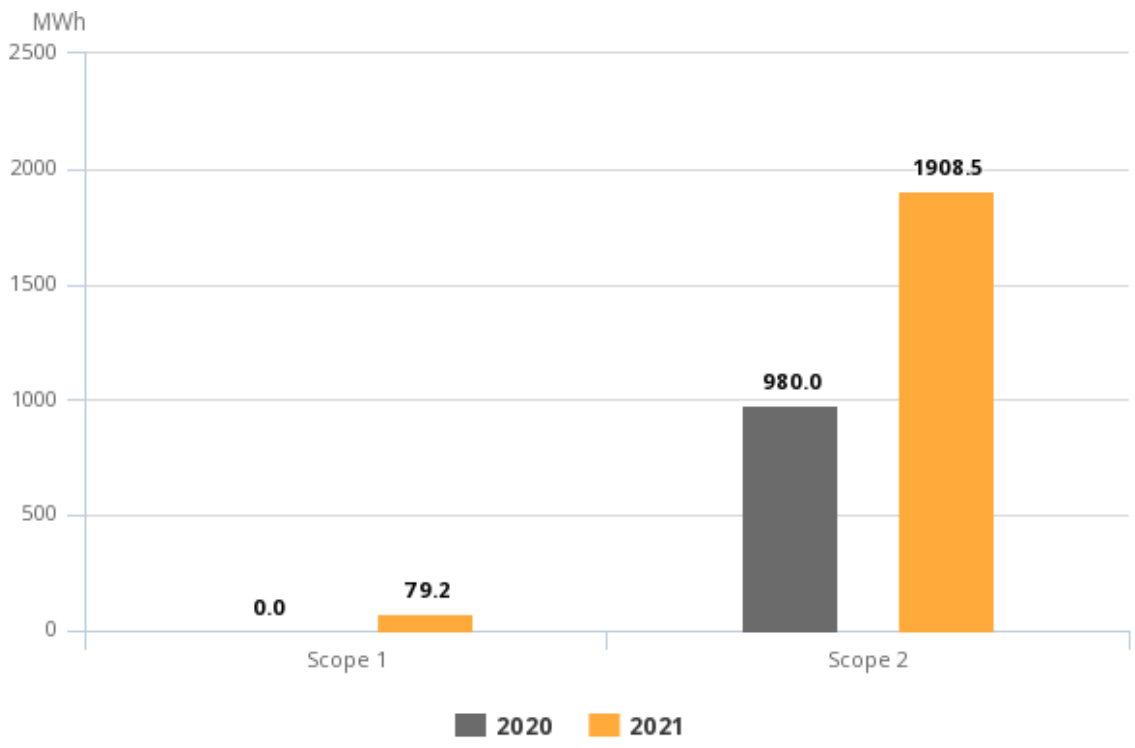
Business travel: Measured in the number of flight trips per region. Air travel accounted for GHG emissions of 397.1 tCO_2e in 2021, which equals 0.1 % of AutoStores total emissions in 2021. There has been less traveling in 2021 due to the Covid-19 pandemic.

All number less than 0.1 is marked with "-" in the report.

Annual GHG Emissions

Category	Description		2020	2021	% change from previous year
Transportation total			**-**	**17.8**	**-**
Diesel (NO)			-	5.1	100.0 %
Petrol (E5)			-	7.6	100.0 %
Diesel (B7)			-	5.1	100.0 %
Scope 1 total			**-**	**17.8**	**100.0 %**
Electricity total			**2,344.4**	**593.6**	**-74.7 %**
Electricity Nordic mix			1,670.0	17.8	-98.9 %
Electricity USA			29.7	26.4	-11.3 %
Electricity Poland			644.7	549.4	-14.8 %
District heating general total			**-**	**125.2**	**-**
District heating Poland mix			-	125.2	100.0 %
Scope 2 total			**2,344.4**	**718.8**	**-69.3 %**
Purchased goods and services total			**63,457.9**	**371,517.4**	**485.5 %**
Plastic avg. (virgin)			58,960.4	362,447.9	514.7 %
Plastic avg. (virgin)	Rubber		-	9.0	100.0 %
Aluminium, recycled			1,756.0	3,727.8	112.3 %
Batteries Li-ion			1,930.2	2,284.7	18.4 %
Steel, stainless			810.6	1,337.4	65.0 %
Copper, recycled			0.6	0.1	-76.7 %
Brass			-	76.4	100.0 %
PCB			-	936.7	100.0 %
Other material inputs			-	77.6	100.0 %
Cable, unspecified			-	95.0	100.0 %
Wood material, virgin			-	524.7	100.0 %
Business travel total			**-**	**397.1**	**-**
Domestic, RF			-	321.8	100.0 %
Continental/Nordic, incl. RF			-	22.3	100.0 %
Intercontinental, RF			-	44.2	100.0 %
Car, petrol (avg.)			-	0.2	100.0 %
Car, diesel (avg.)			-	0.3	100.0 %
Hotel nights, world			-	8.4	100.0 %
Waste total			**-**	**9.7**	**-**
Paper waste, recycled			-	0.5	100.0 %
Plastic waste, incinerated			-	8.8	100.0 %
Glass waste, recycled			-	-	100.0 %
Industrial waste, recycled	Wood		-	0.3	100.0 %
Industrial waste, recycled	Insulation materials		-	-	100.0 %
Plastic waste, recycled			-	-	100.0 %
Metal waste, recycled	Aluminium		-	-	100.0 %
Scope 3 total		-	**63,457.9**	**371,924.3**	**486.1 %**
Total		-	**65,802.3**	**372,660.9**	**466.3 %**
Percentage change		-	**100.0 %**	**466.3 %**	

Annual energy consumption (MWh) Scope 1 & 2



Annual Market-Based GHG Emissions

Category	Unit	2019	2020	2021
Electricity market-based	tCO_2e	-	769.4	831.4
Scope 2 market-based	tCO_2e	-	769.4	956.6
Total market-based	tCO_2e	-	1,734,227.3	372,898.7
Percentage change		**-**	**100.0 %**	**-78.5 %**

Methodology and sources

The Greenhouse Gas Protocol initiative (GHG Protocol) was developed by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD). This analysis is done according to *A Corporate Accounting and Reporting Standard Revised edition*, currently one of four GHG Protocol accounting standards on calculating and reporting GHG emissions. The reporting considers the following greenhouse gases, all converted into CO_2-equivalents: CO_2, CH_4 (methane), N_2O (laughing gas), SF_6, HFCs, PFCs and NF3.

For corporate reporting, two distinct approaches can be used to consolidate GHG emissions: the equity share approach and the control approach. The most common consolidation approach is the control approach, which can be defined in either financial or operational terms.

The carbon inventory is divided into three main scopes of direct and indirect emissions.

Scope 1 includes all direct emission sources. This includes all use of fossil fuels for stationary combustion or transportation, in owned and, depending on the consolidation approach selected, leased, or rented assets. It also includes any process emissions, from e.g. chemical processes, industrial gases, direct methane emissions etc.

Scope 2 includes indirect emissions related to purchased energy; electricity and heating/cooling where the organisation has operational control. The electricity emission factors used in Cemasys are based on national gross electricity production mixes from the International Energy Agency's statistics (IEA Stat). Emission factors per fuel type are based on assumptions in the IEA methodological framework. Factors for district heating/cooling are either based on actual (local) production mixes, or average IEA statistics.

In January 2015, the GHG Protocol published new guidelines for calculating emissions from electricity consumption. Primarily two methods are used to "allocate" the GHG emissions created by electricity generation to the end consumers of a given grid. These are the location-based and the market-based methods. The location-based method reflects the average emission intensity of the grids on which energy consumption occurs, while the market-based method reflects emissions from electricity that companies have purposefully chosen (or not chosen).

Organisations who report on their GHG emissions will now have to disclose both the location-based emissions from the production of electricity, and the marked-based emissions related to the potential purchase of Guarantees of Origin (GoOs) and Renewable Energy Certificates (RECs).

The purpose of this amendment in the reporting methodology is on the one hand to show the impact of energy efficiency measures, and on the other hand to display how the acquisition of GoOs or RECs affect the GHG emissions. Using both methods in the emission reporting highlights the effect of all measures regarding electricity consumption.

The location-based method: The location-based method is based on statistical emissions information and electricity output aggregated and averaged within a defined geographic boundary and during a defined time period. Within this boundary, the different energy producers utilize a mix of energy resources, where the use of fossil fuels (coal, oil, and gas) result in direct GHG-emissions. These emissions are reflected in the location-based emission factor.

The market-based method: The choice of emission factors when using this method is determined by whether the business acquires GoOs/RECs or not. When selling GoOs or RECs, the supplier certifies that the electricity is produced exclusively by renewable sources, which has an emission factor of 0 grams CO_2e per kWh. However, for electricity without the GoO or REC, the emission factor is based on the remaining electricity production after all GoOs and RECs for renewable energy are sold. This is called a residual mix, which is normally substantially higher than the location-based factor. As an example, the market-based Norwegian residual mix factor is approximately 7 times higher than the location-based Nordic mix factor. The reason for this high factor is due to Norway's large export of GoOs/RECs to foreign consumers. In a

market perspective, this implies that Norwegian hydropower is largely substituted with an electricity mix including fossil fuels.

Scope 3 includes indirect emissions resulting from value chain activities. The scope 3 emissions are a result of the company's upstream and downstream activities, which are not controlled by the company, i.e. they are indirect. Examples are business travel, goods transportation, waste handling, consumption of products etc.

In general, the carbon accounting should include information that users, both internal and external to the company, need for their decision making. An important aspect of relevance is the selection of an appropriate inventory boundary which reflects the substance and economic reality of the company's business relationships.