



Carbon Accounting Report 2022

Mester Grønn

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: Mester Grønn AS

The input data is based on consumption data from internal and external sources, which are converted into tonnes CO₂-equivalents (tCO₂e). 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 14064-1.

Reporting Year Energy and GHG Emissions

Emission source	Description	Consumption	Unit	Energy (MWh)	Emissions tCO ₂ e	% share
Transportation total				2,637.9	532.0	3.4 %
Diesel (NO)		245,331.0	liters	2,549.0	511.8	3.3 %
Petrol (avg. bio-blend)		9,342.0	liters	88.9	20.2	0.1 %
Refrigerants total				-	56.5	0.4 %
R-410 A	Terminalen	3.5	kg	-	7.3	-
R-448 A	Butikk	33.0	kg	-	42.0	0.3 %
R-134a	Butikk	5.0	kg	-	7.2	-
Scope 1 total				2,637.9	588.4	3.8 %
Electricity total				5,236.2	36.7	0.2 %
Electricity Norway		5,236,209.0	kWh	5,236.2	36.7	0.2 %
Scope 2 total				5,236.2	36.7	0.2 %
Upstream transportation and distribution total				-	14,773.3	95.2 %
Air Intercontinental freight, incl. RF		12,775,638.0	tkm	-	13,017.1	83.8 %
Sea Container Avg load		11,750,924.0	tkm	-	189.2	1.2 %
Car, diesel (avg.)	Bring	1,623,128.0	km	-	277.2	1.8 %
Car, diesel (avg.)	Best	89,616.0	km	-	15.3	0.1 %
Truck avg. (WTW)	Intertermo	1,228,011.0	km	-	1,271.0	8.2 %
Electric car Nordic	Bring	682,174.0	km	-	3.4	-
Electric car Nordic	Best	10,452.0	km	-	0.1	-
Business travel total				-	92.3	0.6 %
Air travel, continental, incl. RF	Europeisk	83.0	flight trip	-	14.1	0.1 %
Air travel, domestic, incl. RF	Innenlands	533.0	flight trip	-	60.7	0.4 %
Air travel, intercontinental, incl. RF	Verden	14.0	flight trip	-	17.5	0.1 %
Waste total				-	34.4	0.2 %
Cable, unspecified		360.0	kg	-	2.1	-
Hazardous waste, recycled	Kassert isolasjon med miljøskade	520.0	kg	-	-	-
Organic waste, treated	Park- og hageavfall	107,020.0	kg	-	2.3	-
Wood waste, recycled	Blandet bearbeidet trevirke	87,840.0	kg	-	1.9	-
Cardboard waste, recycled	Ren papp	134,780.0	kg	-	2.9	-
Paper waste, recycled	Kontorpaper	1,680.0	kg	-	-	-
Metal waste, recycled	Blandede metaller	29,310.0	kg	-	0.6	-
EE waste, recycled	Blandede EE-avfall	1,730.0	kg	-	-	-
Plastic packaging waste, recycled	PS	16,440.0	kg	-	0.4	-
Mixed waste, recycled	Gips	3,020.0	kg	-	0.1	-
Mixed waste, recycled	Keramikk og porselen	11,160.0	kg	-	0.2	-
Plastic waste, recycled	Folieplast, annen	3,340.0	kg	-	0.1	-
Plastic waste, recycled	Hardplast, emballasje	68,800.0	kg	-	1.5	-
Plastic waste, recycled	Folieplast, klar	11,020.0	kg	-	0.2	-
Plastic waste, recycled	Blandet plast	8,300.0	kg	-	0.2	-
Hazardous waste, incinerated	Usortert brennbart avfall	1,280.0	kg	-	3.1	-
Residual waste, incinerated	Blandet næringsavfall	37,640.0	kg	-	18.9	0.1 %
Scope 3 total				-	14,900.0	96.0 %
Total				7,874.1	15,525.1	100.0 %
KJ				28,346,882,148.0		

Reporting Year Market-Based GHG Emissions

Category	Unit	2022
Electricity Total (Scope 2) with Market-based calculations	tCO ₂ e	2,120.7
Scope 2 Total with Market-based electricity calculations	tCO ₂ e	2,120.7
Scope 1+2+3 Total with Market-based electricity calculations	tCO ₂ e	17,609.1

Energy & climate accounting 2022

Note that where a value corresponds to a number less than 0.1, this is only shown with a dash, -, in the table.

Total climate accounting for the Mester Grønn AS (Scope 1, 2 and 3) in 2022 was 15 525.1 tonnes of CO₂ equivalents (tCO₂e). Total energy consumption (Scope 1 and 2) of 7 874.1 MWh in 2022.

Scope 1

Scope 1 is mandatory reporting of all emissions linked to operating assets where the organization has operational control. This includes all use of fossil fuel for stationary use or transport needs (own, rented or leased vehicles, oil boilers etc.).

For Mester Grønn AS, Scope 1 emissions accounts for a total of 588.4 tCO₂e in 2022. These emissions include diesel and petrol consumption from owned and rented cars as well as refrigerants. The emissions accounts for 3.4% of the emission share.

Scope 2

Scope 2 is mandatory reporting of indirect emissions linked to purchased energy; electricity or district heating/cooling. This applies, for example, to buildings that are rented and not necessarily owned.

For the Mester Grønn AS, emissions from Scope 2 include electricity from offices and warehouses. Emissions from Scope 2 in 2022 were 36.7 tCO₂e. The emission accounts for 0.2% of the total emission share.

Emissions from Scope 2 can be calculated using a location-based or market-based method. Here is an explanation of the two methods:

Location-based method: The emission factor for electricity is based on actual emissions linked to electricity production within a specific area. Within this area, there are various energy producers that use a mix of energy carriers, where the fossil energy carriers (coal, gas, oil) lead to direct emissions of greenhouse gases. These greenhouse gases are reflected through the emission factor and are thus distributed to each individual consumer.

Market-based method: The calculation of the emission factor is based on whether the business chooses to buy guarantees of origin or not. VITA has purchased guarantees of origin, this gives an emission from electricity of 0 tCO₂e using a market-based method

The emission factors used in CEMAsys for electricity are based on national gross production mixes from the International Energy Agency's statistics (IEA Stat). The Nordic mix factor covers production in Sweden, Finland, Norway and Denmark and reflects the common Nordic market area (Nord Pool Spot).

Scope 3

Scope 3 is voluntary reporting of indirect emissions linked to purchased goods or services. These are emissions that can be indirectly linked to the organisation's activities, but which take place outside their control.

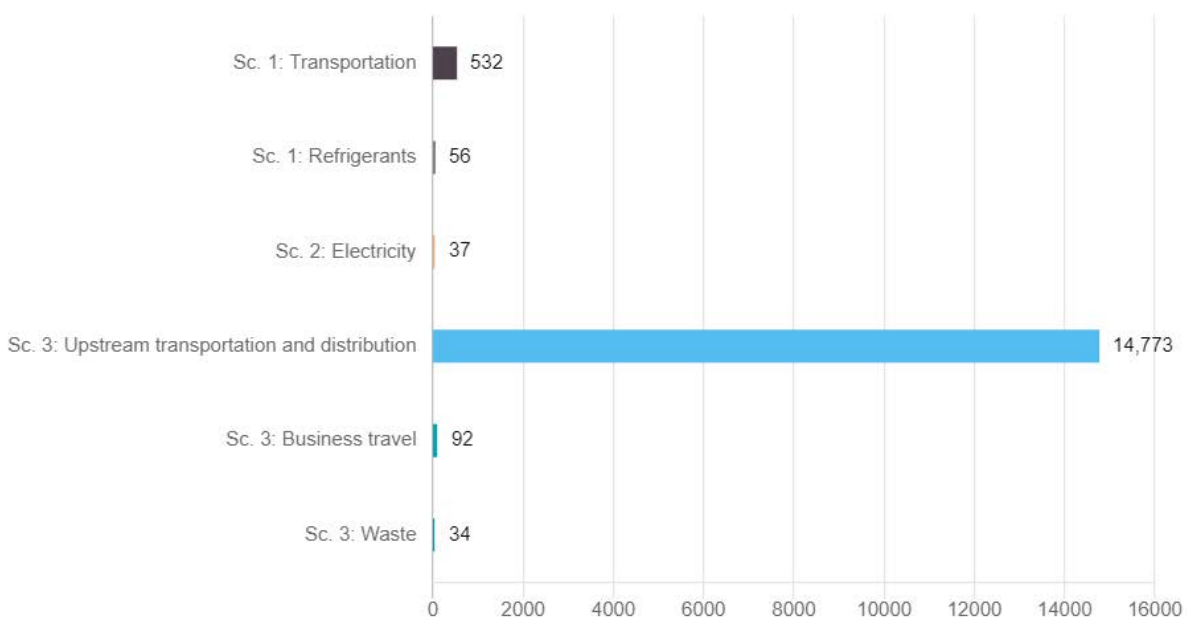
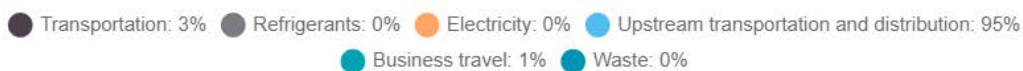
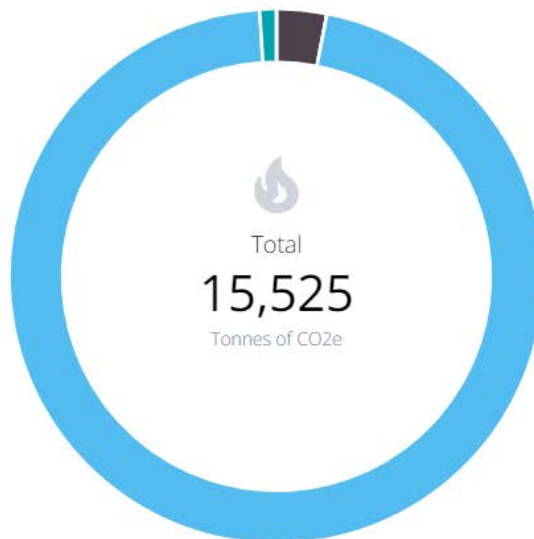
Typical Scope 3 reporting will include travel, logistics/transport of goods, waste and purchased goods and services. In general, a climate statement should include enough relevant information so that it can be used as a decision support tool for the company's management. In order to achieve this, it is important to include the reporting points that have financial relevance and weight, and with which it is possible to do something.

Mester Grønn AS has included emissions from the categories Upstream transportation and distribution, Business travel, and Waste in Scope 3. These categories accounts for 96% emission share of Mester Grønn AS. Scope 3 emissions is in total 14 900 tCO₂e. Most of the emissions are located in Upstream transportation and distribution, followed by Business travel and Waste.

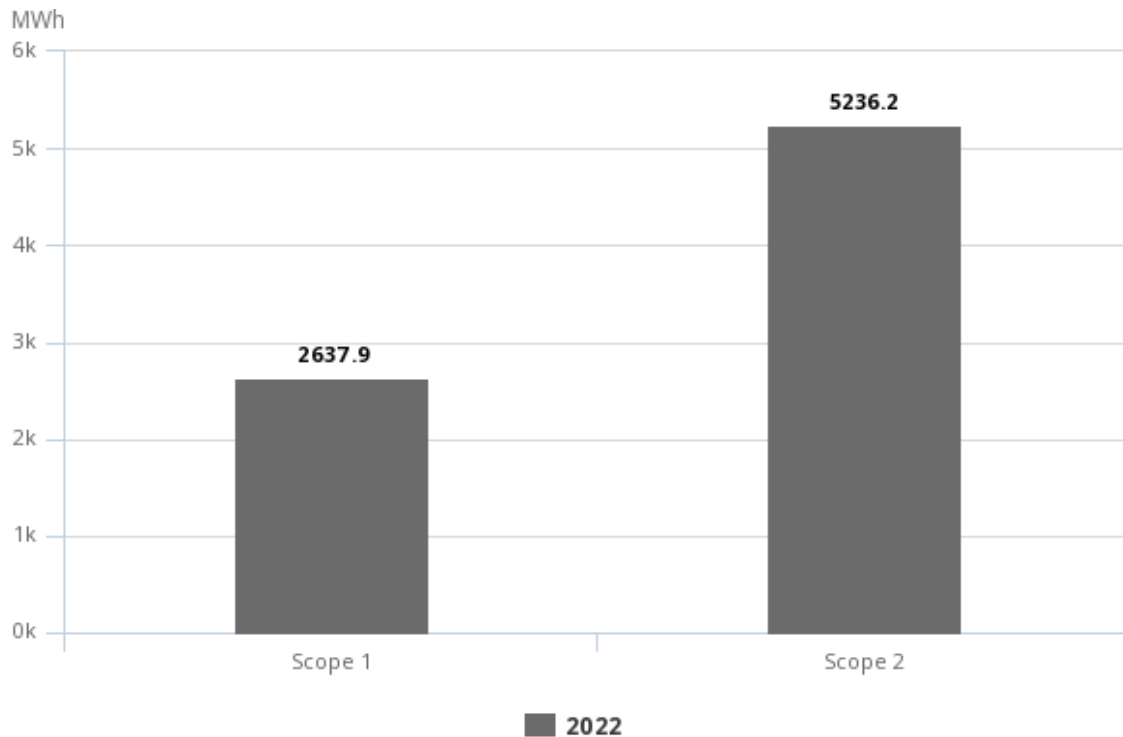
Upstream transportation and distribution accounts for 14 773.3 tCO₂e and 95.2% of the emission share in the company.

Business travel accounts for 92.3 tCO₂e in 2022. The emissions include only trips taken by employees by airplane.

Waste accounts for 34.4 tCO₂e in 2022.



Annual energy consumption (MWh) Scope 1 & 2



Annual Market-Based GHG Emissions

Category	Unit	2022	2022	2023
Electricity Total (Scope 2) with Market-based calculations	tCO ₂ e	2,120.7	2,120.7	-
Scope 2 Total with Market-based electricity calculations	tCO ₂ e	2,120.7	2,120.7	-
Scope 1+2+3 Total with Market-based electricity calculations	tCO ₂ e	17,609.1	17,609.1	-
Percentage change		100.0 %	100.0 %	-

Annual Key Energy and Climate Performance Indicators

Name	Unit	2022	2022	2023	% change from previous year
Scope 1 + 2 emissions (tCO ₂ e)		625.1	625.1	-	-100.0 %
Total emissions (s1+s2+s3) (tCO ₂ e)		15,525.1	15,525.1	-	-100.0 %
Total energy scope 1 + 2 (MWh)		7,874.1	7,874.1	-	-100.0 %

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 CO₂-equivalents: CO₂, CH₄ (methane), N₂O (laughing gas), SF₆, 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 market-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 CO₂e 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.

Sources:

[Department for Business, Energy & Industrial Strategy](#) (2022). Government emission conversion factors for greenhouse gas company reporting (DEFRA)

IEA (2022). Emission Factors database, International Energy Agency (IEA), Paris.

IEA (2022). Electricity information, International Energy Agency (IEA), Paris.

Ecoinvent 3.8 and 3.9.1. Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., and Weidema, B., 2016. The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment.

IMO (2020). Reduction of GHG emissions from ships - Third IMO GHG Study 2014 (Final report). International Maritime Organisation, <http://www.iadc.org/wp-content/uploads/2014/02/MEPC-67-6-INF3-2014-Final-Report-complete.pdf>

IPCC (2014). IPCC fifth assessment report: Climate change 2013 (AR5 updated version November 2014). <http://www.ipcc.ch/report/ar5/>

AIB, RE-DISS (2022). Reliable disclosure systems for Europe – Phase 2: European residual mixes.

WBCSD/WRI (2004). The greenhouse gas protocol. A corporate accounting and reporting standard (revised edition). World Business Council on Sustainable Development (WBCSD), Geneva, Switzerland /World Resource Institute (WRI), Washington DC, USA, 116 pp.

WBCSD/WRI (2011). Corporate value chain (Scope 3) accounting and reporting standard: Supplement to the GHG Protocol corporate accounting and reporting standard. World Business Council on Sustainable Development (WBCSD), Geneva, Switzerland /World Resource Institute (WRI), Washington DC, USA, 149 pp.

WBCSD/WRI (2015). GHG protocol Scope 2 guidance: An amendment to the GHG protocol corporate standard. World Business Council on Sustainable Development (WBCSD), Geneva, Switzerland /World Resource Institute (WRI), Washington DC, USA, 117 pp.

The reference list above is incomplete but contains the essential references used in CEMAsys. In addition, several local/national sources may be relevant, depending on which emission factors are used.