

Final report

Carbon Accounting 2022



Updated 15 January 2024



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Methodology





We apply the leading international standard for CO₂ – emissions: The Green House Gas Protocol

The Greenhouse Gas Protocol (())

The CO2 footprint itself is made up of the total CO2 emissions from your company and is calculated in an annual CO2 accounting, which indicates the emissions of greenhouse gases from activities connected with the production and operation of the company, from the extraction of raw materials, transport, processing, production, as well as sale, use and disposal of the product.

The most widely used international standard for performing CO2 accounting is the Greenhouse Gas Protocol (GHGP), established by WRI and WBCSD in the late 1990s, which constitutes a comprehensive global standard tool for measuring and reporting CO2 emissions from both private and public sectors, value chains and climate action. The GHG protocol thus constitutes a comprehensive framework with standards targeted at companies, but also governments, industrial organisations, NGOs, etc. For commercial measurement and reporting of CO2 emissions, the following standards apply for calculation of Scope 1, 2 and 3 emissions: <u>Corporate Standard, Scope 2 Guidance</u> and <u>Scope 3 Guidance</u> and refers to <u>Avoided Emissions Standard</u> for projects where displaced and avoided CO2 emissions are to be calculated.



The CO₂ accounting indicates the company's greenhouse gas emissions calculated in CO2 equivalents (CO₂e)

CO₂ equivalents

 CO_2 equivalents (CO_2e) is the overall term for greenhouse gas emissions converted to carbon dioxide emissions and thus the terminology CO_2 emissions covers emissions of all seven greenhouse gases included in the Kyoto Protocol (1997), calculated as CO2 equivalents.

In this way, CO_2 equivalents denote the conversion factor for each individual greenhouse gas, which indicates how many tonnes of CO2 are needed to create the same greenhouse gas effect as one tonne of another greenhouse gas. The seven Kyoto gases and their CO2e are listed in the table to the right.

The 7 Kyoto gases¹

| Greenhouse gas | Chemical denotation | CO ₂ equivalent |
|-----------------------------------|--------------------------|----------------------------|
| Carbon dioxide | CO ₂ | 1 |
| Nitrous oxide/nitrous oxide | N ₂ O | 273 |
| Methane | CH_4 | 27,9 |
| Hydrofluorocarbons (HFC gases) | CHF_3 , CH_2F_2 mfl. | 116-12.400 |
| Perfluorocarbons (PFC gases) | CF_4 , C_2F_6 , mfl. | 6.630-11.100 |
| Sulfur hexafluoride | SF ₆ | 25.200 |
| Nitrogen trifluoride | NF_3 | 17.400 |



The calculation of CO₂ emission involves multiplying activity data with associated emission factors



- The model calculates **CO₂ accounts based on activity data** collected by the company multiplied with emission factors.
- Emission factors from recognized databases and official sources have been used.
- The most used emissions factors for this projects come from the following sources: Exiobase, Danish Energy Agency, Energinet, DEFRA¹, IPCC², European Environment Agency (EEA), the Association of Issuing Bodies (AIB) and Carbon Cloud.



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Scope and delimitations





In line with the Greenhouse Gas Protocol, CO₂ emissions from Scope 1, 2 and 3 are included in the accounting



The Greenhouse Gas Protocol



Scope of carbon accounting for Carletti





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Scope 3 accounts for 90% of Carletti's CO2e emissions due to procurement of materials



* Scope 2 is calculated cf. the electricity declaration.

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Scope 1 emissions total 3,919 tCO2e and derive primarily from refrigerants, LPG, fuel oil and natural gas

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Emissions in scope 1 derive from refrigerants (27%), LPG (24.5%), fuel oil (23%) and natural gas (19.5%). Fuel, incl. diesel for passenger cars constitute a relatively smaller share of Scope 1 emissions.

| | Total (kg) | Ton CO2e |
|------------|------------|----------|
| Sum - HFCs | 341.75 | 1,057.91 |
| HFC R-404A | 199 | 780.48 |
| HFC R-407A | 3 | 6.32 |
| HFC R-407C | 70.3 | 124.71 |
| HFC R-422D | 17 | 46.39 |
| HFC R-410A | 38 | 79.34 |
| HFC R-134A | 14.45 | 20.66 |





Scope 1 emissions by country and category

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Most Scope 2 emissions derive from consumption of power in Poland

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Scope 2 emissions by country and category (market-based method)

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Market- or location-based approach affect the structure of the green electricity market – We apply the Market-based approach in this Carbon Accounting

Market-based and location-based A location-based method reflects the average emissions intensity of grids on which energy consumption occurs. <u>Physical</u> <u>reality</u>

A market-based method reflects emissions from electricity that companies have purposefully chosen (or their lack of choice). It derives emission factors from contractual instruments (e.g., GOs*), which include any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims. <u>Hypothetical</u> – risk of greenwashing!



Inventory Accounting

*Guarantees of Origin

1/15/2024

Scope 2 is 4,319 tCO2e when applying the location-based method – in comparison, Scope 2 totals 4,593 tCO2e according to the market-based method

Following the market-based approach, Carletti has reduced its Scope 2 emissions with 47% through purchasing green certificates for all power consumption in Denmark.



Carletti's Scope 2 emissions total 4,593 tCO2e when applying the market-based method. Meanwhile, if Carletti didn't buy green certificates, Scope 2 emissions would be 8,446 tCO2e when using marketbased emission factors. Hence, by purchasing renewable energy for all power consumption in Denmark, Carletti has reduced Scope 2 emissions with 46%.

Green certificates have not been purchased for the power consumption on the Finnish and Polish sites.

Carletti's carbon footprint from power using the location-based method is 4,319 tCO2e in 2022.

Additionality is important to avoid greenwashing when considering options for converting to green power in the market based approach



Scope 3 derives predominantly from procurement with 73.083 tCO2e corresponding to 93% of Scope 3

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Scope 3 derives predominantly from purchases with 73,524 t $\rm CO_{2e}$ out of the total 78,157 tCO2e in Scope 3

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62% of Scope 3 originates from 3 categories

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