



CLIMATE ACCOUNTING REPORT

Scope 1 & 2 - 2021

Created in collaboration between SustainX and Nissens Cooling Solutions

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Executive summary

Nissens Cooling Solutions Scope 1 and 2 calculations for the year 2021 is a continuous calculation practice from the baseline year in 2020, conducted by the Footprint Firm.

This report prioritizes transparency and accountability, focusing on emissions from scope 1 and 2 data.

Nissens Cooling Solutions analysis primarily relies on direct activity data in average data for Scope 1 and 2, providing stakeholders with a comprehensive view of the company's carbon footprint throughout its own operations.

The report serves as a valuable resource for stakeholders to obtain a descriptive overview of the climate accounting practices for Nissens Cooling Solutions.

Nissens Cooling Solutions baseline year is 2020, and this report is a part of the on-going climate accounting process.

Document Revision history

Date	Revision	Description of Changes	Approval
Jan-24	01	Document finalized	Anders Allesø

1. Purpose

The purpose of this GHG Accounting Manual is to provide a detailed description of how the climate accounting process was conducted. Overall themes such as quality control and reporting frequency are described, and an outline is provided per activity data area within the 2 scopes, following the principles below.

- How the data was defined, gathered, and compiled
- Any data assumptions, calculation methods, estimation methods
- Data proof sampling procedures
- Applied emission factors

The content of this report will provide transparency for future third party validations, and for future internal GHG calculations in Nissens Cooling Solutions, to ensure coherence and consistency in methodologies and scopes across years.

2. GHG emission sources for Scope 1 and 2 - Nissens Cooling Solutions 2021

Nissens Cooling Solutions is a provider of cooling solution for renewable energy and industrial application. They have their HQ and production in Horsens, Denmark, and production sites in Slovakia, Czech Republic, and China. Nissens Cooling Solutions is a part of the value chain of the large wind turbine manufacturers such as Vestas and Siemens Gamesa.

The majority of their Scope 1 and 2 emissions are coming from natural gas consumption and electricity consumption. See the graph below.

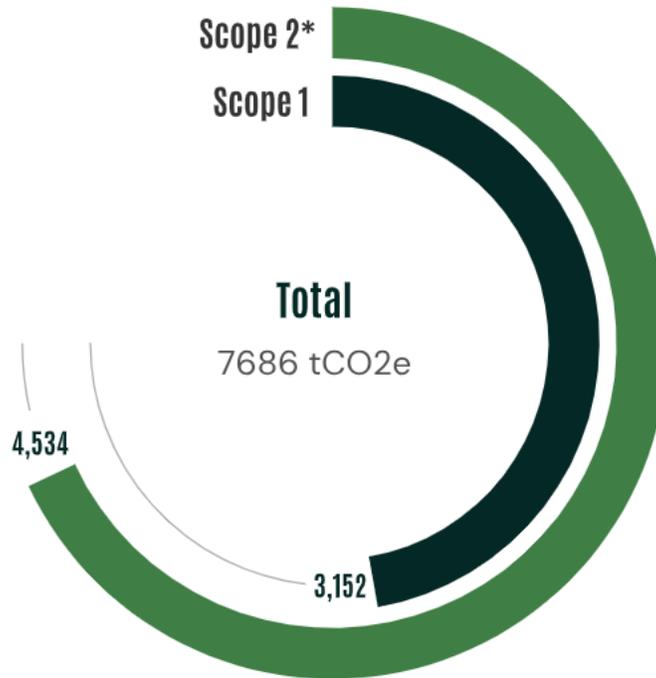


Figure 1: Scope 1, 2 & 3 emissions, and Scope 3 emissions from selected sub-categories
 * Scope 2 emissios – market based

The following table outlines the main sources of GHG emissions within Nissens Cooling Solutions for Scope 1 and 2, as well as it shows which categories have been excluded from the calculations. The exclusions are based on the evaluations taken in the baseline year 2020, performed by the Footprint firm.

Scope 1 + 2	Emission types
Scope 1	
Transport emissions	Diesel consumption from company vehicles
Direct emission from stationary combustion	Natural gas consumption for heating and brazing
Fugitive emissions	No emissions from fugitive sources with relevance for Nissens Cooling Solutions operations
Process emissions	No emissions from process sources with relevance for Nissens Cooling Solutions operations

Scope 1 + 2	Emission types
Scope 2	
Purchased electricity	Purchased electricity within every location
Purchased heating	Purchased heating through district heating in Denmark & Slovakia
Purchased cooling	No emissions from cooling sources with relevance for the Nissens Cooling Solutions operations
Purchased Steam	No emissions from steam sources with relevance for the Nissens Cooling Solutions operations

3. Targets

Nissens Cooling Solutions does not have any published targets, but a roadmap for Scope 1 and 2 reduction initiatives to become Science-based Targets (SBTi) compliant in 2030 has been established. The target from SBTi is absolute contraction at 1.5C. This information is available in the Sharepoint folder: DK - NCS – SustainX > Documents > General > 01 – Climate Accounting > Reduction Roadmap scope 1 + 2.

4. Reporting Period

Reporting period	01-january-2021 to 31-december-2021
Reporting frequency	Scope 1 & 2: Annually

5. Exclusions

The scope exclusions in Scope 1 and 2 is minor cooling units in DK, where there have been added 0.5 kg of refrigerant gas to a cooling unit. This amount is excluded from the calculations.

6. Emission factors

GWPs for Nissens Cooling Solutions inventory follow the [Intergovernmental Panel on Climate Change \(IPCC\) Fourth Assessment Report](#) using 100-year values. Hence, the GHG inventory is estimated based on AR4 standard in the base year.

Global warming potential (GWP) values relative to CO ₂ 100 YEAR TIME HORIZON						
$\frac{\text{CO}_2}{1}$	$\frac{\text{CH}_4}{28}$	$\frac{\text{N}_2\text{O}}{265}$	$\frac{\text{HFCs}}{4}$	$\frac{\text{PFCs}}{7910}$	$\frac{\text{SF}_6}{23500}$	$\frac{\text{NF}_3}{16100}$
			- 12400	- 9540		

Figure 2: GWP multiplication factor of each GHG to CO₂ equivalent, HFCs and PFCs range due to variation of the gas.

For each Scope 1 and 2 category, total emissions of GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) are reported in metric tons of CO₂ equivalent (tCO₂e), since it was not possible to obtain emissions data at a detailed level to split the results per specific gas per category. This is due to the fact that national agencies and other relevant sources do not publish this information. The results will, therefore, only be displayed as CO₂e.

Nissens Cooling Solutions has chosen to use 'Climatic' as emission factor bank for emissions covering Scope 1 & 2, in 2021. Most emissions originate from DEFRA (UK-GOV) and AIB (Association of Issuing Bodies), and a few are selected from more specific data. This is covered in section 7. Activity data collection, calculations, and estimations.

7. Activity data collection, calculations, and estimations

Within this section each scope is outlined and described with relevant information to how the data was retrieved, handled and what emission factors and sources are matched with the activity data.

7.1 Scope 1

Emission sources

The emissions selected to the specific types of data activity are listed below. For Scope 1, only emissions related to the UK GOV from DEFRA have been selected from the Climatic database to match the activities from Scope 1.

Table 1: Total scope 1 activities & emission factors

Description of activity	Type of fuel	Description of emission factors	Source
Company cars (CN)	Diesel	Diesel (average biofuel blend) 2021 UK	BEIS
Company cars (DK) - diesel (Arval, Alm Brand, Q8, Eurocard)	Diesel	Diesel (average biofuel blend) 2021 UK	BEIS
Company cars (SK) - diesel	Diesel	Diesel (average biofuel blend) 2021 UK	BEIS
Company cars (CZ) - diesel	Diesel	Diesel (average biofuel blend) 2021 UK	BEIS
Total amount of used gas m3 ex brazing 2021	Natural gas	Natural gas 2021 UK	BEIS
Total amount of used gas m3 ex brazing 2021	Natural gas	Natural gas 2021 UK	BEIS
Total amount of used gas m3 ex brazing 2021	Natural gas	Natural gas 2021 UK	BEIS
Total amount of used gas m3 ex brazing 2021	Natural gas	Natural gas 2021 UK	BEIS
Gas used for brazing m3 2021	Natural gas	Natural gas 2021 UK	BEIS
Gas used for brazing m3 2021	Natural gas	Natural gas 2021 UK	BEIS

Description of activity	Type of fuel	Description of emission factors	Source
Gas used for brazing m3 2021	Natural gas	Natural gas 2021 UK	BEIS

Data collection and completeness of data

All data was gathered and collected into an excel sheet:

FootprintFirm_X_SustainX_Year_2021_w. appendix. This sheet contains descriptions on how data was retrieved. All Scope 1 data are gathered from the NSC HESQ KPI extract. This data is gathered by HESQ to ensure and uphold all consumption within Nissens Cooling Solutions and its operations on each location. All activities are based in invoice data from purchased materials.

For Scope 1, the following consumption data was extracted covering the total scope 1 activity data input.

Table 2: Total Scope 2 activities

Description of activity	Country	Type of fuel
Company cars (CN)	China	Diesel
Company cars (DK) - diesel (Arval, Alm Brand, Q8, Eurocard)	Denmark	Diesel
Company cars (SK) - diesel	Slovakia	Diesel
Company cars (CZ) - diesel	Czech Republic	Diesel
Total amount of used gas m3 ex brazing 2021	Denmark	Natural gas
Total amount of used gas m3 ex brazing 2021	Slovakia	Natural gas
Total amount of used gas m3 ex brazing 2021	Czech Republic	Natural gas
Total amount of used gas m3 ex brazing 2021	China	Natural gas
Gas used for brazing m3 2021	Denmark	Natural gas
Gas used for brazing m3 2021	Slovakia	Natural gas
Gas used for brazing m3 2021	China	Natural gas

Calculations, estimations & assumptions

All data gathered represents the emissions from Nissens Cooling Solutions in Scope 1, no estimations or assumptions have been made within this scope.

7.2 Scope 2

Emission sources

Nissens Cooling Solutions has chosen to calculate the Scope 2 emissions with the market-based method. This implies that the emission factors selected for purchased grid electricity are residual mix emission factors. The emissions selected to the specific types of data activity are listed below, for Scope 2, emissions related to the AIB has been selected from climatic database to match the activities from Scope 2. Within selected activities specific factors are used. See the table below.

Table 3: Total Scope 2 activities & emission factors

Description of activity	Country	Type	Description of emission factors	Source
Total el kWh ex brazing 2021	Denmark	Grid	Electricity supplied from grid - residual mix 2021 DK	AIB
Total el kWh ex brazing 2021	Slovakia	Grid	Electricity supplied from grid - production mix 2021 SK	AIB
Total el kWh ex brazing 2021	Czech Republic	Grid	Electricity supplied from grid - production mix 2021 CZ	AIB
Total el kWh ex brazing 2021	China	Grid	Electricity supplied from grid CN North 2021	Climatic
El kWh from brazing 2021	Denmark	Grid	Electricity supplied from grid - residual mix 2021 DK	AIB
El kWh from brazing 2021	Slovakia	Grid	Electricity supplied from grid - production mix 2021 SK	AIB

Description of activity	Country	Type	Description of emission factors	Source
El kWh from brazing 2021	China	Grid	Electricity supplied from grid CN North 2021	Climatic
District heating use 2021	Denmark	District heating	District heat Horsens	Fjernvarme Horsens
District heating NSC North SK	Slovakia	District heating	District heat Slovakia	Annual report 2021, Slovenské elektrárne

Data collection and completeness of data

All data was gathered and collected into an excel sheet:

FootprintFirm_X_SustainX_Year_2021_w. appendix. This sheet contains descriptions on how data was retrieved. All Scope 2 data are gathered from the NSC HESQ KPI extract. This data is gathered by HESQ to ensure and uphold all consumption within Nissens Cooling Solutions and its operations on each location. All activities are based in invoice data from purchased materials.

For Scope 2, the following consumption data was extracted covering the total Scope 2 activity data input.

Table 4: Total Scope 2 activities

Description of activity	Country	Type
Total el kWh ex brazing 2021	Denmark	Grid
Total el kWh ex brazing 2021	Slovakia	Grid
Total el kWh ex brazing 2021	Czech Republic	Grid
Total el kWh ex brazing 2021	China	Grid
El kWh from brazing 2021	Denmark	Grid
El kWh from brazing 2021	Slovakia	Grid
El kWh from brazing 2021	China	Grid

Description of activity	Country	Type
District heating use 2021	Denmark	District heating
District heating NSC North SK	Slovakia	District heating

Calculations, estimations & assumptions

All data gathered represents the emissions from Nissens Colling Solutions in Scope 2. All grid emission factors are retrieved from internationally recognized agencies. Emission factors from district heating are retrieved from supplier specific data. The Slovakia emission factor for district heating is selected from the supplier's annual report, where they state their own emissions. The factor is based on both, the electricity they provide from electrical grid and district heat, thus there is some limitation to this factor. However, it is the best data available. The emission factor from the Danish district heat in Horsens represents the emissions from the specific supplier.

8. Base year change log

Structural and methodological changes in subsequent year inventories may trigger a base year recalculation; for example, changed calculation methodologies and emission factors; new or additional data availability; structural changes that require a description of calculation approached for new GHG emission sources at Nissens Cooling Solutions.

No recalculation of the base year 2020 has been triggered within the calculation of 2021 data.

Date	Revision	Description of Changes	Approval
N/A	N/A	N/A	N/A