CARBON FOOTPRINT REPORT 2023

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UAB Abepa opened in Kaunas, Lithuania in 1994. Since that time the company has developed a long standing tradition and reputation for serving countless customers with their welding, grinding and manufacturing needs while providing exceptional customer service every time. They specialize in medium to high production volumes and aim for 100% on time delivery.

The company has set a goal to become a leading supplier of metal products to wind turbine manufacturers worldwide.

Quality

Abepa are an innovative metal processing company constantly striving to provide comprehensive value to our clients and putting a strong emphasis on delivering quality. In view of this the company has established a stringent quality management system to monitor every aspect of our manufacturing and distribution

Renewable energy

In 2021 Abepa implemented renewable energy sources in aims to reduce the intensity of energy consumption in the company by increasing RES production and consumption.

Employee care and growth

Abepa has a strong focus on employee health and security. They collaborate with companies monitoring employee safety and health. The company also offers continuous training opportunities for employees to aid personal development, promote progress, and enhance skills.

Methodology

This report presents the results of the carbon footprint of the company and details the categories, boundaries, assumptions and methodology used in its creation. The company defines the categories (scopes) of its direct and indirect emissions of operations within the limits of the organisation with the GHGs classified in accordance with the LST EN ISO 14064-1:2019 standard. The report also follows the good practice principles and has been prepared according to the following frameworks:

– World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI), 2004 A Corporate Accounting and Reporting Standard

– Intergovernmental Panel on Climate Change (IPCC), 2006 Guidelines for National Greenhouse Gas Inventories

– UK Department for Environment, Food & Rural Affairs (DEFRA), 2021 Government Greenhouse Gas Conversion Factors for Company Reporting

– The European Bank for Reconstruction and Development (EBRD), 2014 Methodology for the assessment of greenhouse gas emissions The methodology used for the footprint calculations is covered in the Quantification of GHG emissions section, including the reporting principles of what the methodology is based on and how the baseline is broken down into different emission categories for reporting purposes. Sources of data and boundaries for data gathering are summarised in Organisational boundaries.

Principles

This report is carried out in accordance with the following key principles of GHG Accounting and Reporting Principles and ISO 14064-1, which are central to the assessment of the footprint and are applied throughout the calculation of the baseline year, and should be referred to for any subsequent annual calculations:

– **Relevance:** All identified sources of GHG emissions considered likely to make a material contribution to the sector footprint were included in the data collection exercise. No sources are knowingly excluded without initial quantification and assessment of their contribution to the overall footprint.

– **Completeness:** Account for and report all relevant GHG emission sources and activities within the defined inventory boundary.

– **Consistency:** Emissions category (scope), boundaries, data sources, calculation methodologies, assumptions and extrapolations used have been documented in this report so they can be consistently applied year on year to allow meaningful comparison of the footprint in the future. This footprint report is aligned with the Greenhouse Gas (GHG) Protocol and ISO 14064 standard, adding to the credibility and consistency of the emissions category (scope) and approach.

– **Transparency:** To assist the company in the communication of emissions to stakeholders and third parties, information on the scope, boundaries and overall output is provided in this report. Throughout the development of the CO2 footprint, detailed records of input data, methods of calculation, assumptions andextrapolations have been made, with the objective of retaining a transparent and comparable audit trail for the assessment. A detailed calculation of the company's footprint is provided in the Quantification of GHG emissions section.

– **Accuracy:** In all aspects of emissions, uncertainty has been reduced as far as is practicable by the use of primary data relating to the Group. Where this was unavailable, historical data, where publicly available, and extrapolation based on data from other companies or national data has been used.

Methodology

Organisational boundaries

The organisational boundaries define the businesses and operations that constitute the company for the purpose of accounting and reporting greenhouse gas emissions. Organisational boundaries determine which activities and operating facilities, such as grid and gas distribution and processing plants (collectively termed 'operations' in this report), shall be included in the inventory. Three 'consolidation' approaches can be used to set organisational boundaries:

– **Operational control.** A company accounts for 100% of the GHG emissions to/from an operation over which it has the authority to introduce and implement its own operating policies.

– **Financial control.** A company accounts for 100% of the emissions to/from an operation over which it has the ability to direct financial and operating policies with the aim of gaining economic benefits.

– **Equity-share approach.** A company accounts for the emissions to/from an operation according to its share of equity (or percentage of economic interest) in that operation.

In order to define the boundaries of the organisation, the operational control approach is selected since it represents the organisation's activities the best with respect to the units that perform operational control of their activity. It is also the approach that has greater potential for reducing GHG emissions.

Reporting boundaries

Defining the operational boundaries involves identifying the emissions associated with its operations. The WBCSB/WRI GHG Protocol classifies these emissions as Scope 1, Scope 2 and Scope 3. ISO 14064-1:2019 categorises them as follows:

– Direct GHG emissions and removals that occur inside the organisational boundary and that are directly controlled by the organisation (i.e., any owned or controlled activities that release emissions straight into the atmosphere).

– Indirect GHG emissions from imported energy – include only GHG emissions from fuel combustion associated with the production of final energy and utilities, such as electricity, heat, steam, cooling and compressed air.

– Indirect GHG emissions from transportation which are the consequence of the activities of the organisation but occur from sources not owned or controlled by the company. GHG emissions occur from sources located outside the organisational boundaries. Those sources are mostly due to fuel burned during transport of persons and goods (rail, maritime, air and road).

– Indirect GHG emissions from products used by the organisation which occur from sources located outside the organisational boundaries and are associated with the goods used by the organisation. Those sources are associated with all types of goods purchased by the reporting organisation.

– Indirect GHG emissions which are associated with the use of products sold by the organisation during the life stages occurring after the organisation's production process.

– Indirect GHG emissions from other sources – they are specific emissions (or removals) that cannot be reported in any other category.

Presenting the emissions by categories facilitates understanding of the key emissions sources in the organisation's footprint. It gives potential for the company and stakeholders in future years to target improvements in data collection and the areas where data has been identified to be less robust in this footprint.

Reporting period

This report refers to the GHG analysis and quantification for the calendar year 2023. This inventory report covers the period from 1 January 2023 to 31 December 2023. The base year for monitoring emissions reduction performance is 2023.

Quantification of GHG emissions

Quantification approach

The emission factor approach involves the multiplication of business activity data by the relevant emission factor, which is a coefficient describing the amount of GHG flux per unit of activity. For instance, to calculate the GHG emissions from stationary com- bustion, emissions may be estimated by multiplying the quantity of natural gas by the emission factor that specifies how much GHG emissions are emitted during the combustion process. Default emission factors are largely based either on field measu- rements at individual research1 sites or represent average values across a range of sites. The established emissions factors have been derived from reliable references for each emissions source.

The carbon footprint is measured in CO2 equivalent (kg CO2 eq) and is calculated by multiplying the activity data by the standard emission factors. The final emissions' total for each section is provided in tonnes of CO2 equivalent (t CO2 eq).

GHG emissions = Σ $(AD_i \times EF_i)$

GHG emissions – kg CO_2 eq

AD (Activity data) – activities of the organisation based on units of measure

EF (Emissions factor) – coefficient kg CO_2 eq / unit of measure

i (Index) – activity type

Once the emissions figures for each gas type (methane, nitrous oxide, and hydrofluorocarbon) are determined, the CO2 eq value is determined by multiplying the figures by the appropriate Global Warming Potential (GWP) for that GHG (Table 1). These come from the fourth IPCC assessment report and are in line with DEFRA methodology, which explains that, even though the values from the sixth assessment report are already published, they have not been officially accepted for use under the United Nations Framework Convention on Climate Change. Therefore, these values will be updated to fifth or sixth assessment report when they are approved and taken into account by DEFRA.

For reporting purposes, these gases are converted to CO2 equivalent, using their GWP:

Table 1. **Greenhouse gases and GWP**

Gas	Global Warming Potential[2] (GWP)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous Oxide (N_2O)	298
Hydroflourocarbons (HFCs)	650–11,700*
Perflourocarbons (PFCs)	6,500–9,200*
Sulphur Hexafluoride (SF6)	23,500

**Depending on gas*

The gases generally chosen for quantification are the six "Kyoto Gases", as detailed in the ISO 14064-1 standard and the WBCSD/ WRI GHG Protocol.

1 WRI, WBCSD, 2014. GHG Protocol Agricultural Guidance. World Resources Institute and World Business Council for Sustainable Development.

2 The Fourth Assessment Report of the IPCC

Qualitative estimation of uncertainty

The uncertainty associated with the calculation of GHG emissions is a combination of uncertainties associated with the activity data and the emission factors. The emission factors used to create the Group GHG inventory report are extracted from official sources and are specific to each source category. The emission factors and caloric data value used are not considered as uncertain because they come from official sources and they are beyond the control of the organisation. To minimise the uncertainty associated with the activity data, most of emission sources have environmental management systems that conform to the ISO 14001:2015 standard. Data for direct emissions is obtained from commercial invoices or the internal accounting system. Uncertainties in the accounting of the emissions are related to the following general assumptions:.

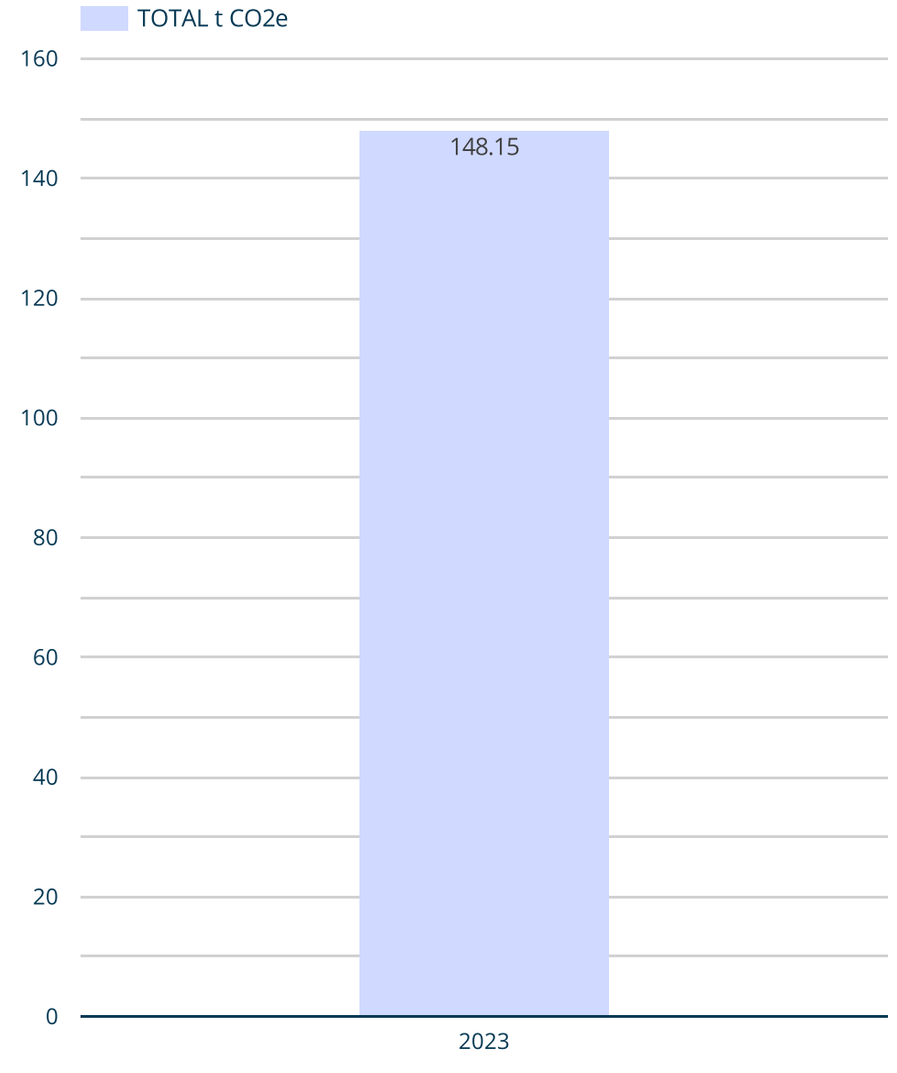
– Fuel is bought using fuel cards from independent fuel suppliers. Fuel card data is provided by independent fuel suppliers to Fleet Services. Purchased fuel is recorded in fleet database and is matched against the supplier invoices.

– Fuel use (natural gas, waste, biomass) is measured using scales or meters and the uncertainty is calculated according to the GHG monitoring plan. Some facilities (Elektrėnai Complex, Vilnius Third Combined Heat and Power Plant and Kaunas CHP) are operating based on the EU emissions trading system. Uncertainties are identified and managed according to the system’s requirements.

– Data of the building classified as the company's office and operational facilities is submitted as actual meter readings or is estimated based on the billing system. The building (facilities) which the company operates is based on actual meter readings.

Greenhouse gas emissions annual overview

Only Scopes 1 and 2 included



Overview

2023 marks the first year the company is reporting their GHG emissions. This report, which includes Scope 1 and 2 emissions, will serve as a foundation for monitoring future reductions.

In 2023, total emissions amounted to 148.15 tonnes of CO2e, with Scope 2 emissions contributing the largest share. This reflects the company's reliance on electricity for core operations, which is the primary source within this category.

The company also supplements a part of its operational needs with on-site renewable energy generation, which is excluded from Scope 2 emissions in this report following GHG Protocol guidelines.

*Note: All figures are presented in metric tonnes of greenhouse gases.

Greenhouse gas emissions overview (2023)

CO2e
148.15

CO2
147.61

CH4
0.02

N2O
0.51

Scope	CO2e	CO2	CH4	N2O
Scope 1	44.27	43.73	0.02	0.51
Scope 2	103.88	0	0	0
Grand total	**148.15**	**43.73**	**0.02**	**0.51**

Scope 1	covers emissions from sources that an organisation owns or controls directly – for example from burning fuel in our fleet of vehicles (if they're not electrically-powered).
Scope 2	are emissions that a company causes indirectly and come from where the energy it purchases and uses is produced. For example, the emissions caused when generating the electricity that we use in our buildings would fall into this category.

Footprint intensity

Low intensity Medium intensity

FOOTPRINT PER EMPLOYEE, t
1.09

FOOTPRINT PER M2, t
0.04

FOOTPRINT PER REVENUE €, KG
0.012

FOOTPRINT PER kWh / m2
160.1

*Note: All figures are presented in metric tonnes of greenhouse gases.

Abepa GHG inventory by scopes

01

Scope 1 - direct impact

Fuel consumption from office car.

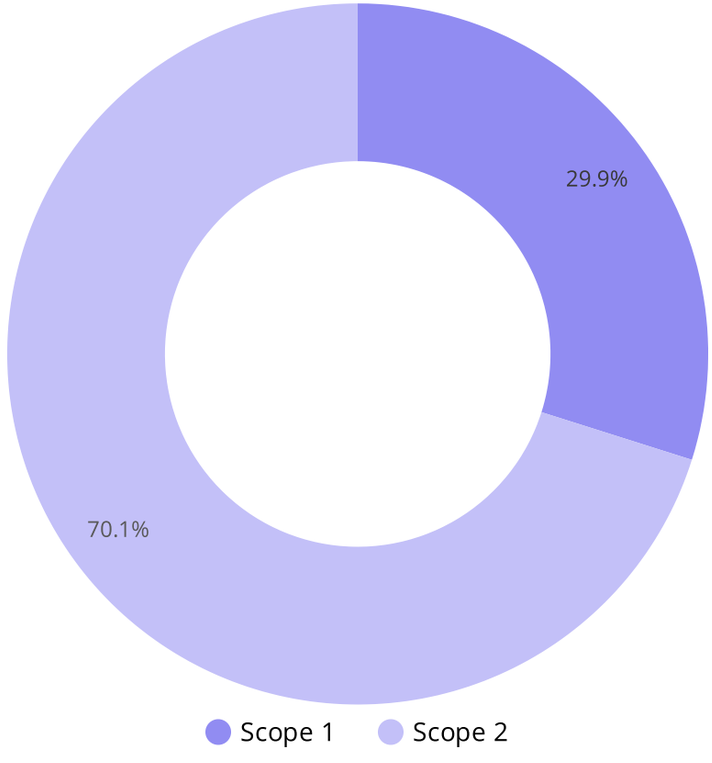
02

Scope 2 - indirect impact

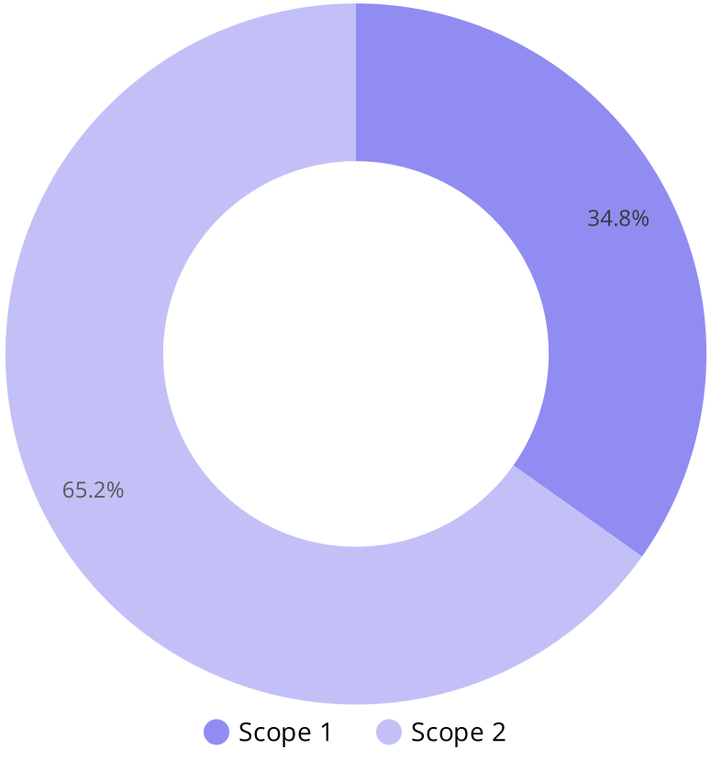
Purchased electricity and heating for its own use at Kaunas office.

Share of emissions by scopes

Abepa



Metalworking Industry company



Key takeaways:

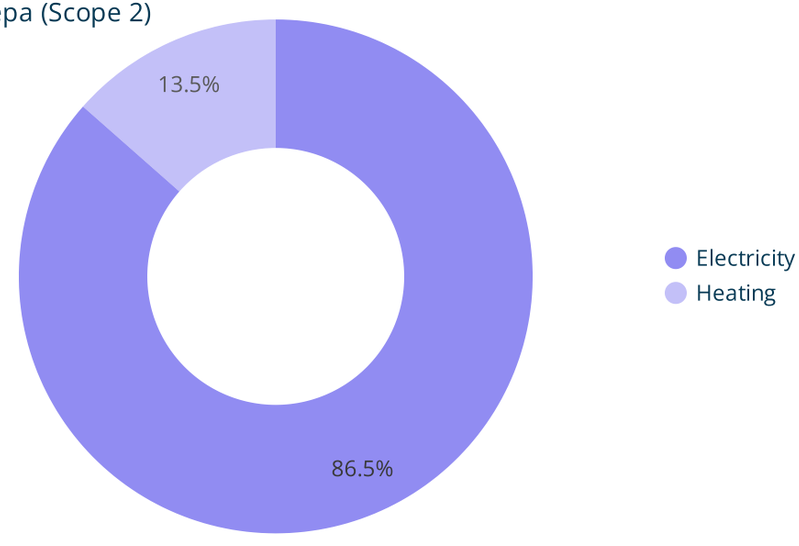
- In the metalworking industry, Scope 2 emissions typically dominate the total footprint when considering only Scope 1 and 2.
- The data used for comparison is for the reporting year of 2021.

*Note: All figures are presented in metric tonnes of greenhouse gases.

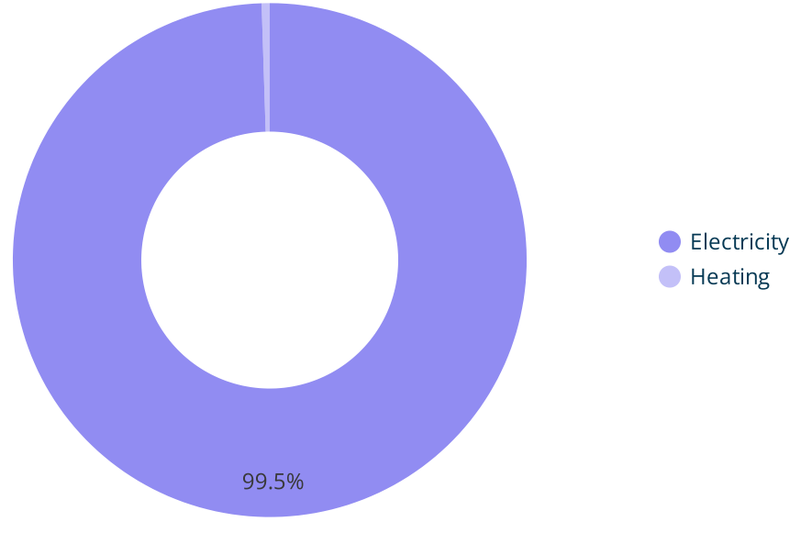
Abepa GHG inventory by scopes

Scope	Category	CO2e	CO2	CH4	N2O
Scope 1	Transport and mobile sources	44.27	43.73	0.02	0.51
Scope 2	Heating	14.03	14.03	0.00	0.00
Scope 2	Electricity	89.85	89.85	0.00	0.00
	Grand total	**148.15**	**147.61**	**0.02**	**0.51**

Abepa (Scope 2)



Metalworking industry company (Scope 2)



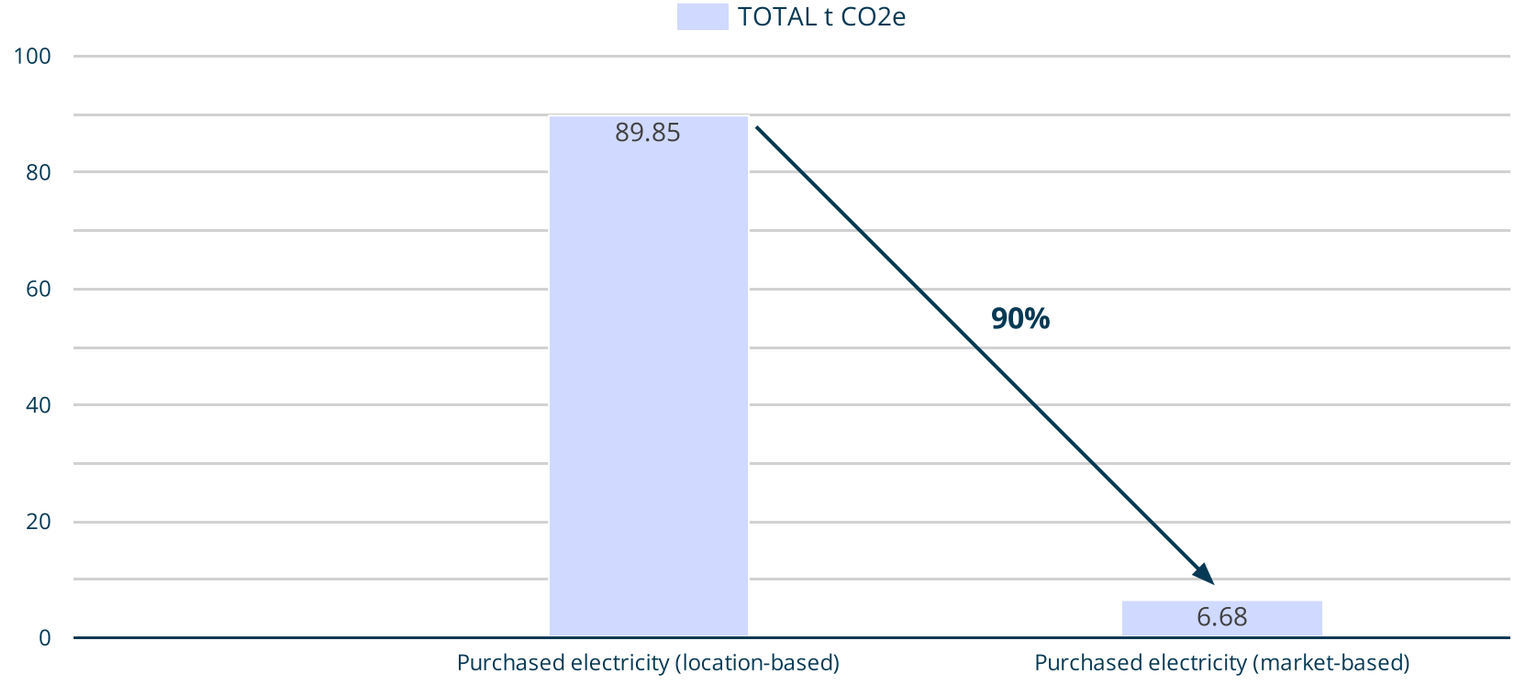
Key takeaways:

- Across the metalworking industry, electricity consumption is the dominant emission source of Scope 2, accounting for well over 50% of total energy use.
- Due to low CO2 concentration and minimal impact on final emissions, data for gases was excluded from Scope 1 emission calculations.
- Electricity generated from on-site renewable sources is excluded from the final energy emission calculations.
- The data used for comparison is for the reporting year of 2022.

*Note: All figures are presented in metric tonnes of greenhouse gases.

Energy emission reduction

Company's CO2e emissions comparison: regular vs green energy



Key takeaways:

- Switching to green energy could result in a significant reduction of the company's total CO2e emissions from energy consumption by roughly 90%.
- Slight variations in the data may exist due to Vilnius region emission factor being applied instead of Kaunas region factor.

*Note: All figures are presented in metric tonnes of greenhouse gases.

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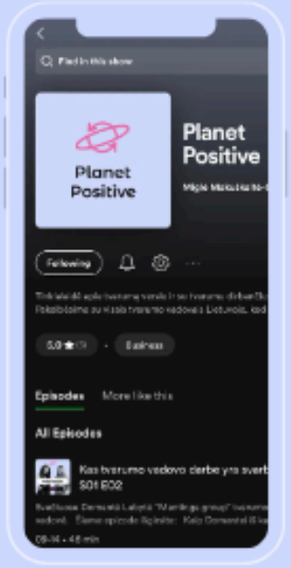

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