Intended for

Sulzer Management AG

Neuwiesenstrasse 15

8400 Winterthur

Switzerland

Document type

Report

Date

February 2021

CALCULATION OF THE CORPORATE CARBON FOOTPRINT 2020

SULZER AG

RAMBØLL Bright ideas. Sustainable change.

CALCULATION OF THE CORPORATE CARBON FOOTPRINT 2020

SULZER AG

Project name	**Calculation of the Corporate Carbon Footprint 2020**
Project no.	**352001156**
Recipient	**Shahana Buchanan**
Document type	**Report**
Version	**Final**
Date	**February 22, 2021**
Prepared by	**Andreas Backs**
Checked by	**Daniel Kielhorn**
Approved by	**Jens Haubensak**
Description	**This final report describes all required working steps for calculating the Corporate Carbon Footprint of Sulzer worldwide, defines the system boundary and all agreed framework conditions. It has been prepared in accordance with the GHG Protocol – A Corporate Accounting and Reporting Standard.**

CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

Sulzer, as a global leader in fluid engineering, has committed itself to include ESG aspects into business decisions, measuring and reducing their sustainability impact. In pursuit of a strategic approach to reduce said sustainability impact, Sulzer is looking to identify and tackle its carbon emissions.

Therefore, Sulzer is calculating their carbon emissions worldwide, with a broad scope of emissions sources, covering all scopes (Scope 1 to Scope 3) as defined by the Greenhouse Gas (GHG) Protocol.

For each emissions source, location-specific primary data was collected and validated. Where no primary data could be obtained, reasonable and robust assumptions have been made in order to arrive at a complete and comprehensive set of data. The calculation of carbon emissions with regards to the collected activity data has been based on application of scientifically well-recognised emissions factors, stemming from various professional sources.

Following this calculation approach, which is described in detail within section 2.3 of this report, Sulzer's Corporate Carbon Footprint for the reporting period of 2020 is calculated to be

111,176 t of CO_2eq

Analysis and interpretation of the results yields in the following conclusions:

- Sulzer's total Carbon Footprint decreased by 6.4% compared to 2019
- GHG emissions per 1000 working hours decreased by 6.3 % compared to 2019
- Electricity consumption is Sulzer's largest source of emissions (52.5% of total CCF)
- Usage of green electricity within Sulzer's operations would significantly decrease the overall Carbon Footprint

1. INTRODUCTION

Ramboll Germany was commissioned by Sulzer Management AG (hereinafter referred to as Sulzer) to calculate the Corporate Carbon Footprint (CCF) for the year 2020 (reporting Period 1st October 2019 to 30th September 2020). The procedure, data sources and results of this calculation are presented in the following report.

1.1 Background

Sulzer, founded in 1834, is a global leader in fluid engineering, delivering innovative, high performance and high-quality solutions in the fields of Pumps Equipment, Rotating Equipment Services, ChemTech and Application Systems.

Besides its commitments for operational excellence, partnership and people, Sulzer is aiming to be a responsible corporate citizen. This is demonstrated by Sulzer's corporate strategy, which engrains Environmental, Social and Governance (ESG) aspects into business decisions. Part of this strategy is for Sulzer to maintain and expand its status as an environmentally responsible global industrial company, both in product design and daily business.

Thus, Sulzer has developed a comprehensive reporting system to gather environmental (and other relevant non-financial) data to calculate a variety of its footprints and derive meaningful reduction opportunities.

As part of its environmental commitments Sulzer is calculating its Carbon Footprint. Ramboll was awarded the contract for the calculation for the first time for the year 2020.

1.2 Purpose and Objectives

The agreed objective for the project described in this report includes the calculation of Sulzer's CCF worldwide. The approach will allow for identification of emissions hotspots, both site-specific as well as per emissions source.

While the primary data was provided by Sulzer, Ramboll conducted a detailed research on the required secondary data (emission factors) and applied all data using a tailor-made Excel tool for the calculation.

A specific set of Sulzer's operations, Sulzer Application Systems (Sulzer APS) has been selected to have the CCF verified by a third party. Separate results for Sulzer APS are thus displayed in section 5. Additional information, if required, will be displayed for Sulzer APS within the relevant sections of this report.

2. METHODOLOGY

This chapter describes the framework conditions on which the calculation is based and the methods for defining the system boundary and calculating the CCF.

2.1 Applied standards

The Greenhouse Gas Protocol (GHG Protocol) was selected as the relevant standard for calculating emissions and for reporting. The following standards and accompanying documents were taken into account with regard to the system boundary:

- The Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard (Revised Edition), published by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) in 2004.
- GHG Protocol – Scope 2 Guidance (An amendment to the GHG Protocol Corporate Standard), published by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) in 2015
- Greenhouse Gas Protocol – Corporate Value Chain (Scope 3) Accounting and Reporting Standard (Supplement to the GHG Protocol Corporate Accounting and Reporting Standard), published by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) in 2011.
- Greenhouse Gas Protocol – Technical Guidance for Calculating Scope 3 Emissions (Supplement to the Corporate Value Chain (Scope 3) Accounting & Reporting Standard), published by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) in 2011.

2.2 System boundary

The system boundary describes both, the locations and the emission sources that were taken into account for the calculation of the corporate carbon footprint. Both are explained in the following sections with regard to the described project.

2.2.1 Organizational Boundary

According to the Greenhouse Gas Protocol, Sulzer has chosen the "Control Approach" with "Operational Control" for setting the organizational boundary. In case of Sulzer, a total of 75 sites across various business divisions have been included within the organizational boundary.

A complete list of sites can be found in Appendix I.

2.2.1.1 Organizational Boundary (Sulzer APS)

Sulzer APS also chose the "Control Approach". According to the requirements of the GHG protocol, the following sites of Sulzer APS are included in the organizational boundary:

Table 1: Sites within Sulzer APS' organizational boundary

Site (Code, Full Site Name)
E34111 - Sulzer Mixpac (UK) Ltd (PC Cox Ltd.) (Newbury)
E34611 - Sulzer Mixpac Poland (Nowa Wies Wroclawska)
E34711 - Sulzer Mixpac Deutschland GmbH (Kiel)
E42512 - Sulzer Shanghai Engin. & Mach. Works Ltd. (Minhang Mixpac Systems)
E65411 - Sulzer Mixpac USA Inc. (Salem NH)
E65412 - Sulzer Mixpac USA Inc. (PC Cox Ltd.) (Haslett)
E65611 - Sulzer Mixpac AG (Haag)
E75111 - GEKA GmbH Germany (Bechhofen)
E75112 - GEKA GmbH Germany (Bamberg)
E75211 - GEKA Manufacturing Corporation (Elgin)
E75311 - GEKA do Brasil (Sao Paulo)

2.2.2 Operational boundary

The operational system boundary describes the emission sources taken into account for the calculation of the carbon footprint. While Scope 1 and 2 emissions sources have to be considered in order to comply with the GHG Protocol, Scope 3 emission sources can be added on a voluntary basis. Thus, each reporting company can decide if they want to report Scope 3 emissions, and which categories out of the 15 Scope 3 emission sources defined by the GHG protocol are reported.

Before starting the carbon footprint calculation for 2020, Sulzer and Ramboll discussed and agreed on several relevant scope 3 emissions sources relevant to Sulzer's business activities. Based on this it was decided to include the following emission sources for the 2020 calculation as shown in Table 2:

Table 2: Emissions sources included in Sulzer's operational boundary

Scope	Emissions Source	
Scope 1 – direct emissions	Fuels	Natural Gas
		Butane
		Propane
		Kerosene
		Fuel Oil (light)
		Fuel Oil (heavy)
	Company vehicles	Diesel
		Petrol
Scope 2 – indirect, energy-related emissions	Electricity	
	District heating	
Scope 3 – other indirect emissions	Business travel	Flights
		Rental Cars
	Indirect emissions related to energy and fuels	

For the calculation of emissions, all greenhouse gases defined by the United Nations Framework Convention on Climate Change (UNFCCC), namely carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), nitrogen trifluoride (NF_3) and perfluorocarbons (PFCs) have been considered. The resulting unit for the calculated carbon footprint is t CO_2eq.

2.3 Calculation approach

The general approach for the calculation of a carbon footprint is based on activity data and emission factors. Activity data has to be gathered within the company or from suppliers, in order to demonstrate the amount of fuel and energy consumption, distances related to business travel etc. Emission factors can be found in databases or can be derived from scientific studies. These factors provide values of CO_2eq per kilometer, kWh or ton of material. By multiplying relevant activity data with appropriate emission factors and adding up the results, a carbon footprint can be calculated.

For the calculation of Sulzer's CCF, a tailor-made Excel-tool has been developed by Ramboll. Within this Excel-tool, all agreed-upon emission sources are calculated in different tabs of the document, while the summary tab at the beginning of the document reveals the total results. Calculation will be based upon site-specific activity data.

2.4 Base year & recalculation policy

Companies calculating carbon footprints according to the GHG Protocol shall develop a base year emissions recalculation policy, and clearly articulate the basis and context for any recalculations. In addition, a "significance threshold" has to be determined, defining a significant change that requires to recalculate the base year and, if applicable, other historically calculated carbon footprints. A recalculation of the base year shall only be conducted, if there is a significant change related to the amount of emissions, which cannot be explained with organic growth of the company, leading to a capacity growth of the facilities, natural circumstances like a very hard winter, leading to an increased demand of heating or the implementation of reduction measures, like a change to green electricity. As an example, opening new sites or closing existing sites would not lead to a recalculation of the base year, as this would be the result from organic growth or diminution related to the company's activities. Instead of this, the following reasons may lead to the need of recalculating the base year:

- Structural changes in the reporting organization that have a significant impact on the company's base year emissions. A structural change involves the transfer of ownership or control of emissions-generating activities or operations from one company to another. While a single structural change might not have a significant impact on the base year emissions, the cumulative effect of a number of minor structural changes can result in a significant impact. Structural changes include, for instance, mergers, acquisitions and divestments as well as changes in the system boundary
- Changes in calculation methodology or improvements in the accuracy of emission factors or activity data that result in a significant impact on the base year emissions data.
- Discovery of significant errors, or a number of cumulative errors, that are collectively significant.

As long as the base year is permanently recalculated, if necessary, following the abovementioned policy it is ensured, that the reduction measures implemented in order to reach emission related targets are not overlain by other effects.

For Sulzer, a significance threshold of 10% is defined. This means that if all changes according to the above categories together cause a deviation of at least 10% in relation to the complete carbon footprint, a recalculation of the base year becomes necessary. The threshold must be applied on the total carbon footprint, including Scope 1, 2 and 3 emissions.

3. DATA

As described in chapter 2.3, two different kinds of data are generally required to calculate a Corporate carbon Footprint, activity data and emission factors. The compilation of this data in the course of the calculation for Sulzer is outlined in the sections below.

Activity data has to be collected within the company or suppliers have to be asked to provide data related to the activities carried out on behalf of the reporting company. In total, all carbon relevant information with respect to activities covered by the defined operational system boundary should be compiled.

3.1 Activity Data

Activity data is being collected by Sulzer in two different ways for the respective emissions sources.

3.1.1 Scope 1, Scope 2, Scope 3 (Indirect emissions related to energy and fuels)

Data collection for scope 1, scope 2 and scope 3 (indirect emissions related to energy and fuels) is based on a Sulzer-specific data computation system (SURE). Within this system, each site reports its consumption values for the various types of fuels and energy. Data is being reported in different units per source and site and subsequently recalculated into Gigajoules (GJ) within SURE. To allow the activity data to be compatible with relevant emissions factors unit, during the calculation Sulzer's own conversion factors have been applied. An overview of conversion factors is presented in table 3. For calculation purposes, data extraction from SURE into an excel "data dump" has been performed.

Table 3: Conversion factors for emissions sources

Emissions source	Conversion	Conversion factor
Natural Gas	GJ to kWh	0,0036
Butane	GJ to kWh	0,0036
Propane	GJ to kWh	0,0036
Kerosene	GJ to Liters	0,03464
Fuel Oil (light)	GJ to Liters	0,036984
Fuel Oil (heavy)	GJ to Liters	0,0383362
Diesel	GJ to Liters	0,034611
Petrol	GJ to Liters	0,03145
Electricity	GJ to kWh	0,0036
District heating	GJ to kWh	0,0036

Data inputs between SURE and the data dump have been partially cross-checked to ensure a seamless exportation of data into the dump.

3.1.2 Business travel data

Data collection related to business travel activities (flights, rental cars) is based on supplier information from travel agencies (flights) and rental car companies (rental cars). Information could be filtered specifically towards the considered reporting period.

3.2 Emission factors

After having collected all required activity data for the calculation of the carbon footprint, appropriate emission factors had to be identified to convert the activity data into t CO_2eq.

Emission factors have been derived from different sources, in order to find the most suitable for every emissions source. Table 4 summarizes the emission sources for which emission factors were identified and their related sources.

Table 4: Emissions factors sources

Emission source	Categories	Sources
Fuels	Natural Gas Propane/Butane → LPG (gross CV) Kerosene Fuel Oil (light) Fuel Oil (heavy)	DEFRA 2020
Company vehicles	Distinction between type of engine: Diesel, Petrol, E85, Unknown Distinction between size of vehicle: • Large, • Medium, • Small, • Unknown Distinction between consumption: • Kilometers, • Liters	DEFRA 2020
Electricity (Location-based)	Emissions factors for electricity have been researched specifically for each location within the scope of this calculation.	Scope 2: GaBi Professional – Energy Extension IEA 2018 for locations: • Saudi Arabia • Singapore • South Africa Scope 3: GaBi Professional – Energy Extension DEFRA 2020 for Well-to-tank emissions for Generation, Transmission & Distribution; DEFRA 2017 for Transmission & Distribution for locations: • Saudi Arabia • Singapore

Emission source	Categories	Sources
		• South Africa
Electricity (Market-based)	Market-based emissions factors for electricity could be obtained for all sites included within the Sulzer APS scope.	E34111 - Sulzer Mixpac (UK) Ltd (PC Cox Ltd.) (Newbury) Electricity Provider E34611 - Sulzer Mixpac Poland (Nowa Wies Wroclawska) Electricity Provider E34711 - Sulzer Mixpac Deutschland GmbH (Kiel) Electricity Provider E42512 - Sulzer Shanghai Engin. & Mach. Works Ltd. (Minhang Mixpac Systems) State-specific information E65411 - Sulzer Mixpac USA Inc. (Salem NH) State-specific information[1] E65412 - Sulzer Mixpac USA Inc. (PC Cox Ltd.) (Haslett) State-specific information E65611 - Sulzer Mixpac AG (Haag) Electricity Provider E75111 - GEKA GmbH Germany (Bechhofen) Electricity Provider E75112 - GEKA GmbH Germany (Bamberg) Electricity Provider E75211 - GEKA Manufacturing Corporation (Elgin) State-specific information E75311 - GEKA do Brasil (Sao Paulo) State-specific information
District heating	Emissions factors for district heating have been researched specifically for each location that receives district heating.	Germany: GEMIS 4.95 Other locations: DEFRA 2020 Global Emissions Factor
Business travel	**Air travel:** Distinction between distance: • Domestic: <460km, • Short-haul: 460-3.700km, • Long-haul: >3.700km Distinction between cabin class: • First class • Business class	DEFRA 2020

[1] Emissions factors for US-based sites are presented in state-specific information for 2017. Factors are displayed as pounds of CO_2eq per BTU and have been adjusted within the calculation.

Emission source	Categories	Sources
	• Premium economy class • Economy class **Rental Cars:** Distinction equivalent to company vehicles.	
Indirect emissions related to energy and fuels	Fuels Company vehicles Electricity District heating	DEFRA 2020 DEFRA 2020 Please refer to Electricity GEMIS 4.95, DEFRA 2020

3.3 Data Quality

The data collection process involved various parties and was led by Sulzer's project team, in order to obtain the large amount of data required to perform this calculation. Due to close collaboration between all parties a comprehensive set of data could be presented for each location and emissions source. Each set of data has been evaluated to be a reasonable basis for the subsequent calculation. Only minor assumptions needed to be applied in the entire data collection process.

3.3.1 Activity Data Quality

Activity data stems from established internal (SURE) and external (supplier information) management and accounting systems. Data quality is perceived to be high.

3.3.2 Calculation Approach

Ramboll's CCF calculation tool has been developed by professionals with a vast amount of experience in calculations of carbon footprints as well as application of relevant standards, such as the GHG protocol. Ramboll's calculation approach and respective tool(s) have been used in a multitude of CCF calculations. The calculation approach builds on basic mathematic equations and uses cross-references throughout the entire calculation document, thus minimizing potential sources of errors. To match the presented activity data with relevant and credible emissions factors, minor conversions needed to be made (please refer to Table 3 for conversion factors).

One potential uncertainty arises with respect to rental cars fueled by E85 (Ethanol), as the emissions factor is based on volume (Liters), whereas activity data was provided in kilometers driven. Thus, Ramboll researched reliable information on an average value for kilometers driven per liter of E85. The US Environmental Protection Agency (EPA) offers average consumption values for various sizes of vehicles. For this calculation, an average of 12.47 km/Liter has been applied.[2]

Rental cars for Sulzer APS did not run on E85.

Overall, the quality of the calculation approach is perceived to be high.

[2] The assumption references a medium-size vehicle (2020 Ford Transit, 4 cylinder, 2.0 Liters Automatic, Gas Mileage of Flex-Fuel (E85) Vehicles (fueleconomy.gov))

3.3.3 Emissions Factors Quality

Selection of emissions factors depends on the type of emissions sources and means of data availability. Ramboll has wide access to a variety of sources of emissions factors. Those sources are being constantly evaluated regarding comprehensiveness, credibility and actuality. Applicability of each source is assessed on a case-by-case basis, so that the most fitting set of emissions factors may be applied to the calculation. Where available, primary emissions factors, e.g. from electricity providers, are applied.

While consistency of applied emissions factors would be desirable, for Sulzer's calculation, emissions factors were not available for all emissions sources from one set of factors. Thus, a combination of credible and relevant primary and secondary emissions factors has been applied. All of those secondary sources comply with the approach described in the above section. Thus, emissions factors quality is perceived to be high.

4. RESULTS

This section outlines the results of the corporate carbon footprint calculation for Sulzer.

4.1 Overall Corporate Carbon Footprint (Location-based[3])

Following the calculation approach described in section 2.3, and applying the activity data and emissions factors described in section 3, Sulzer's Corporate Carbon Footprint for the reporting period of 2020 is calculated to be

111,176 t of CO_2eq

Table 5 as well as Figure 1 display a more in-depth overview of Sulzer's emissions from each scope, identifying scope 2 emissions, with a share of 53.8%, to be the main contributor to the CCF.

Table 5: Total carbon emissions and emissions per scope

Scope	Emissions [t CO2eq]	Share [%]
Scope 1	21,545	19.4
Scope 2	59,794	53.8
Scope 3	29,837	26.8
Total	**111,176**	**100,00**

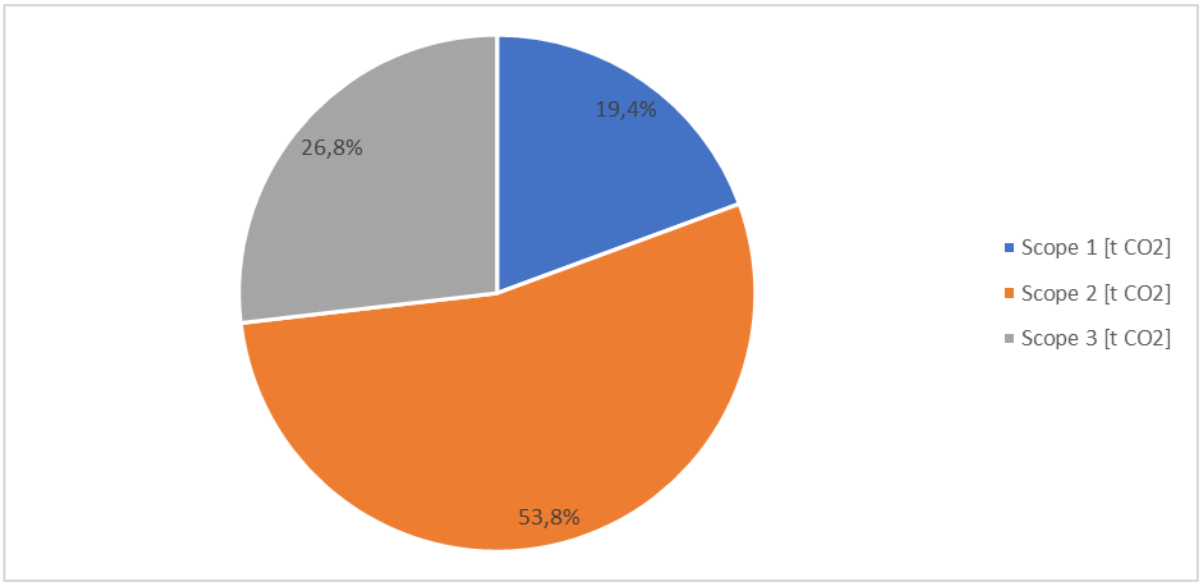

Figure 1: Emissions per scope

[3] As market-based emissions factors could not be obtained for a significant amount of sites, no distinction between market-based and location-based emissions has been performed.

4.2 Carbon Footprint per Emissions Source

For further understanding and in-depth analysis of the emissions, however, a more detailed depiction of the emissions source is required. Thus, Table 6 and Figure 2 display Sulzer's emissions per emissions source as defined by the operational boundary.

Table 6: Emissions per Emissions Source

Emissions Source	Total Emissions [t CO2]	Share [%]
Fuels	14,251.6	12.8
Company Vehicles	7,293.5	6.6
Electricity	58,422.7	52.5
District heating	1,371,6	1.2
Business travel	10,326.9	9,3
Indirect emissions related to energy and fuels	19,509.6	17.6
TOTAL	**111,176**	100,0

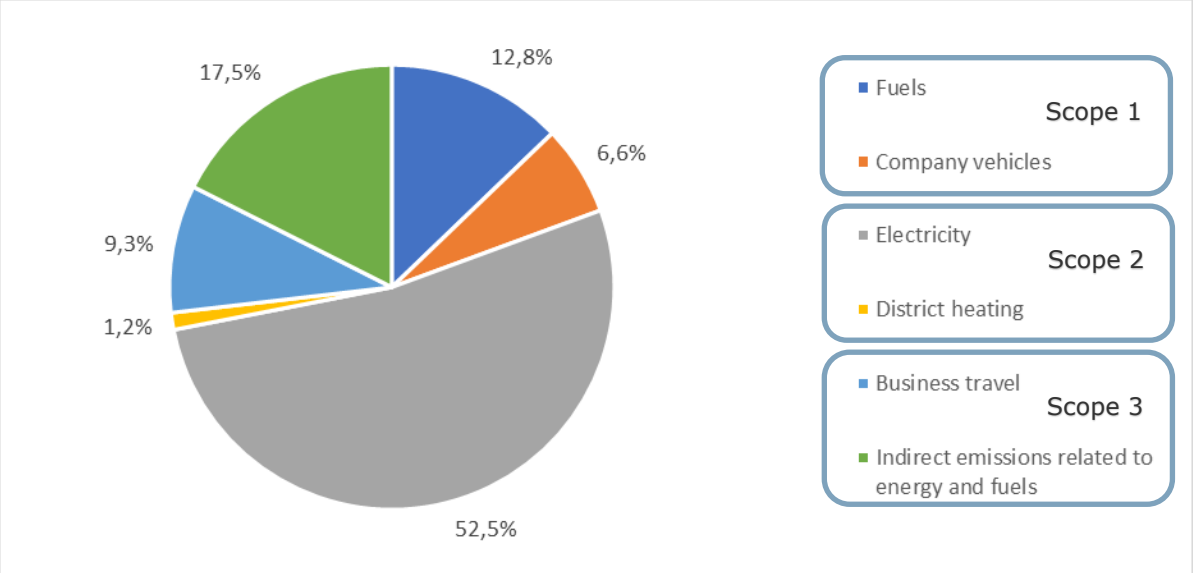

Figure 2: Share of emissions per Emissions source

Distinction between emissions sources quickly reveals electricity to be the largest source of emissions (52.5%). Fuels and indirect emissions related to energy and fuels present further emissions sources that yield a share of more than 10% of the overall CCF.

4.2.1 Electricity emissions

As Electricity has been identified to be Sulzer's main source of carbon emissions, the following presents an in-depth look into the composition of Sulzer's electricity emissions across its operations. Table 7 presents an overview of Sulzer's sites that emit at least 1,000 tCO_2eq of Scope 2 electricity emissions.

Table 7: Largest emitting sites regarding electricity emissions

Site Code	Location	Scope 2 Emissions [t CO2eq]	Electricity Consumption [GJ]
E51911	USA	5,404.77	42,669
E66911	China	4,971.79	26,283
E42512	China	4,008.42	21,190
E75111	Germany	3,677.97	26,588
E40711	India	2,877.66	12,933
E34611	Poland	2,867.09	12,649
E42511	China	2,702.63	14,287
E51612	USA	2,428.95	19,176
E75211	USA	2,034.90	16,065
E60311	Saudi Arabia	1,814.99	9,151
E40611	India	1,720.64	7,733
E30211	South Africa	1,445.19	5,505
E65611	Switzerland	1,321.32	29,004
E693PERES02	Australia	1,314.10	5,869
E75112	Germany	1,302.42	9,415
E63211	USA	1,285.24	10,147
E465TS11	USA	1,168.87	5,515
E71611	China	1,121.08	8,851
E60411	China	1,109.03	8,531
E51629	Germany	1,057.54	8,349
E48811	India	1,044.62	8,247

4.3 Discussion of results

Based on the displayed results, various key messages could be derived:

- Total GHG emissions decreased by 6.4% compared to 2019 (118,805 t CO_2eq)
- GHG emissions per 1000 working hours (4.5) decreased by 6.3% compared to 2019 (4.8)
- Electricity consumption is Sulzer's largest source of emissions (52.5% of total CCF)
- Scope 3 emissions related to fuels and energy present the second largest emissions source, which correlates with the electricity consumption

Sulzer, as a manufacturing company, mainly uses electricity to produce its goods. Thus, electricity consumption is not expected to decrease and will likely be Sulzer's main source of carbon emissions in upcoming years. The biggest lever for Sulzer to significantly reduce its carbon emission therefore would be to switch more of its operations to renewable electricity, as already established for most UK sites.

5. RESULTS SULZER APS

This section outlines the results of the corporate carbon footprint calculation for Sulzer APS.

5.1 Sulzer APS Corporate Carbon Footprint (Market-based)

Following the calculation approach described in section 2.3, and applying the activity data and emissions factors described in section 3, Sulzer APS' Corporate Carbon Footprint for the reporting period of 2020 is calculated to be

22,345 t of CO_2eq

Table 8 as well as Figure 3 display a more in-depth overview of Sulzer APS' emissions from each scope, identifying scope 2 emissions, with a share of 58.1%, to be the main contributor to the CCF.

Table 8: Total (Market-based) carbon emissions and emissions per scope (Sulzer APS)

Scope	Emissions [t CO2eq]	Share [%]
Scope 1	3,675	16.4
Scope 2	12,737	57.0
Scope 3	5,933	26.6
Total	**22,345**	**100,00**

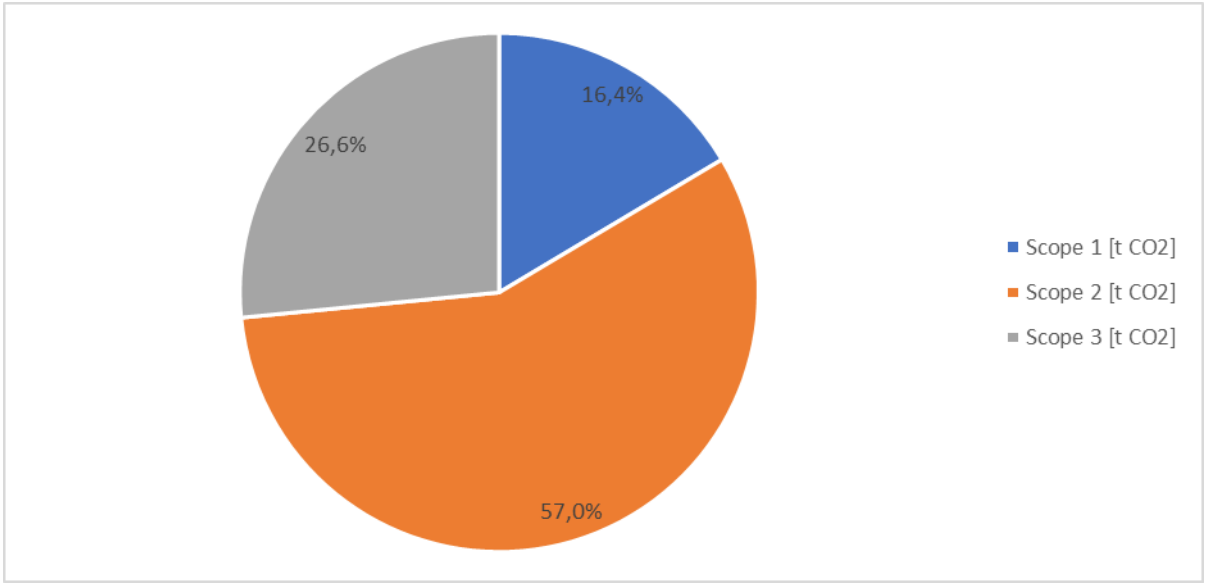

Figure 3: Emissions per scope (Sulzer APS, Market-based)

5.1.1 Carbon Footprint per Emissions Source (Market-based)

For further understanding and in-depth analysis of the emissions, however, a more detailed depiction of the emissions source is required. Thus, Table 9 and Figure 4 display Sulzer APS' emissions per emissions source as defined by the operational boundary.

Table 9: Emissions per Emissions Source (Sulzer APS, Market-based)

Emissions Source	Total Emissions [t CO2]	Share [%]
Fuels	3,598,00	16.1
Company Vehicles	76.6	0.3
Electricity	12,374,8	55.4
District heating	362.4	1.6
Business travel	591.9	2.6
Indirect emissions related to energy and fuels	5,341.0	23.9
TOTAL	**22,345**	**100.0**

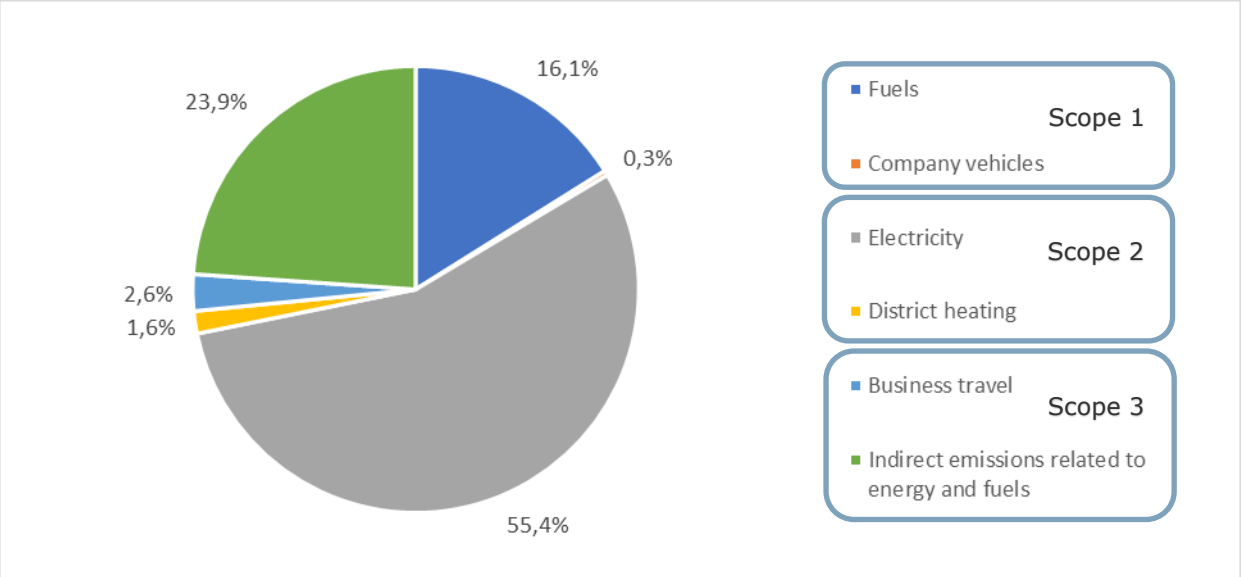

Figure 4: Share of emissions per Emissions source (Sulzer APS, Market-based)

Market-based emissions for Sulzer APS demonstrate a quite similar breakdown between scopes and emissions sources as Sulzer's entire operations.

5.2 Sulzer APS Corporate Carbon Footprint (Location-based)

Following the calculation approach described in section 2.3, and applying the activity data and emissions factors described in section 3, Sulzer APS' Corporate Carbon Footprint for the reporting period of 2020 is calculated to be

25,990 t of CO_2eq

Table 10 as well as Figure 3 display a more in-depth overview of Sulzer APS' emissions from each scope, identifying scope 2 emissions, with a share of 58.1%, to be the main contributor to the CCF.

Table 10: Total (Location-based) carbon emissions and emissions per scope (Sulzer APS)

Scope	Emissions [t CO2eq]	Share [%]
Scope 1	3,675	14.1
Scope 2	16,098	62.0
Scope 3	6,217	23.9
Total	**25,990**	**100,00**

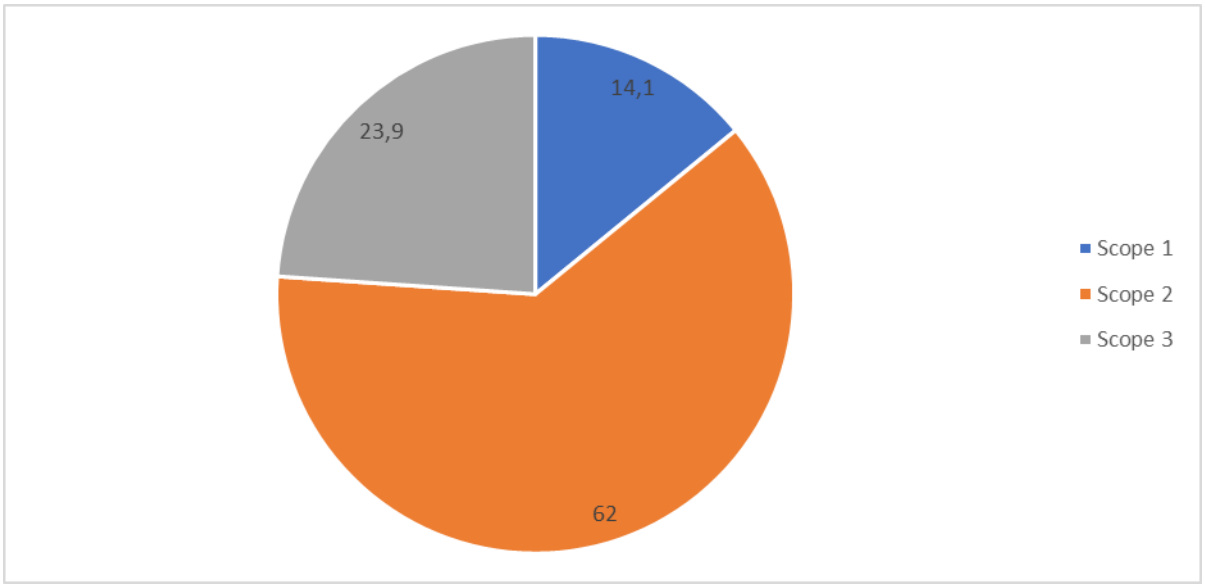

Figure 5: Emissions per scope (Sulzer APS, Location-based)

5.2.1 Carbon Footprint per Emissions Source (Location-based)

For further comparison between Market- and Location-based CCF results, an emissions source breakdown is presented below.

Table 11: Emissions per Emissions Source (Sulzer APS, Location-based)

Emissions Source	Total Emissions [t CO2]	Share [%]
Fuels	3,598,00	13.8
Company Vehicles	76.6	0.3
Electricity	15,735.4	60.5
District heating	362.4	1.4
Business travel	591.9	2.3
Indirect emissions related to energy and fuels	5,625.3	21.6
TOTAL	**25,990**	**100.0**

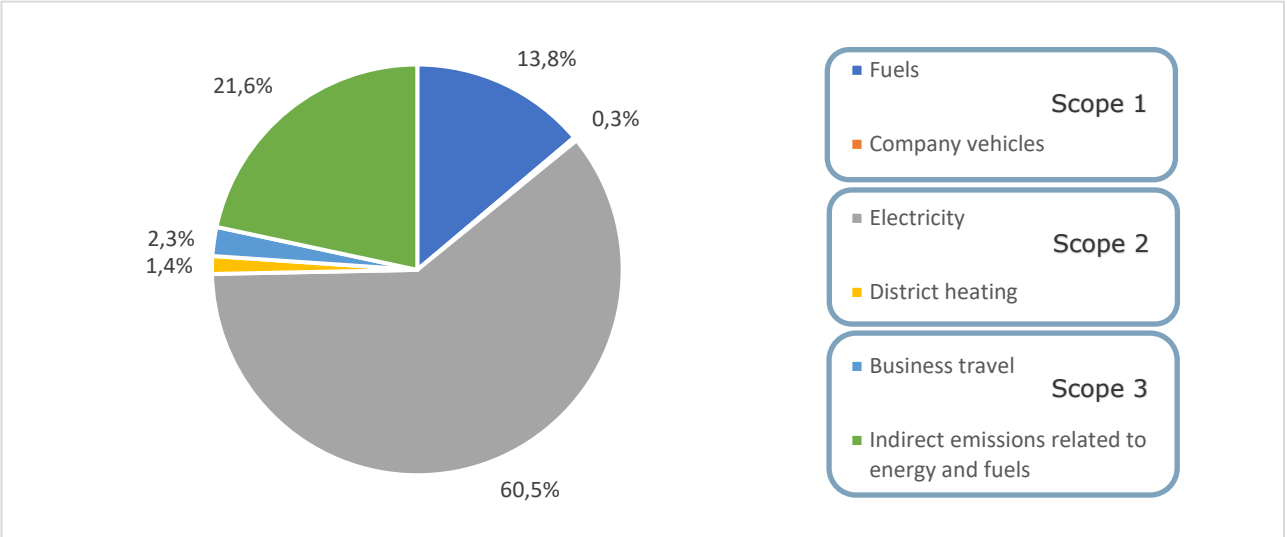

Figure 6: Share of emissions per Emissions source (Sulzer APS, Location-based)

Compared to Sulzer APS' market-based emissions, the Location-based CCF is 16.3% larger. This increase can be attributed to the average location-based emissions factors, which are higher than the site-specific factors from Sulzer APS' energy providers.

APPENDIX I

Full list of sites included in Sulzer's CCF calculation scope:

Code	Site	Abbreviation	Country
E12211	Sulzer Chemtech AG (Winterthur)	CTCH-WI	Switzerland
E12213	Sulzer Chemtech AG (Allschwil)	CTCH-AS	Switzerland
E123KOUE99	Sulzer Managment AG (KOUE) Winterthur		Switzerland
E21011	Sulzer Pumpen (Deutschland) GmbH (Bruchsal Plant)	SPDE-BR	Germany
E21012	Sulzer Pumpen (Deutschland) GmbH (Schkopau SC)	SC Schkopau	Germany
E21014	Sulzer Pumpen (Deutschland) GmbH (Neuss SC)	SC Neuss	Germany
E21015	Sulzer Pumpen (Deutschland) GmbH (Janschwalde SC)	SC Jänschwalde	Germany
E26211	Sulzer Pumps (UK) Ltd. (Leeds Plant)	SPUK-LE	UK
E27411	Sulzer Pompes France SASU (Buchelay Plant PPC)	SPF-BU	France
E30211	Sulzer Pumps (South Africa) (Pty) Ltd. (Johannesburg Plant)	SPZA-EL	South Africa
E31111	Sulzer Pumps Norway A/S (Stavanger)	SC Stavanger	Norway
E31411	Sulzer Wood Ltd. (Aberdeen SC)	SC Aberdeen (Ellon)	UK
E34111	Sulzer Mixpac (UK) Ltd (PC Cox Ltd.) (Newbury)	ASCU-NE	UK
E34611	Sulzer Mixpac Poland (Nowa Wies Wroclawska)	ASPL-NW	Poland

Code	Site	Abbreviation	Country
E34711	Sulzer Mixpac Deutschland GmbH (Kiel)	ASDE-KI	Germany
E38211	Sulzer Turbo Services Rotterdam B.V. (Europoort Rt.)	SC Rotterdam - G. Maddison to extrapolate data from last year	Netherlands
E40611	Sulzer India Ltd. (Pune)	CTIN-PU	India
E40711	Sulzer Pumps India Pvt. Ltd. (Navi Mumbai Plant)	SPI-NA	India
E42511	Sulzer Shanghai Engin. & Mach. Works Ltd. (Shanghai)	CTCN-SH	China
E42512	Sulzer Shanghai Engin. & Mach. Works Ltd. (Minhang Mixpac Systems)	ASCN-MI	China
E44611	Sulzer Dalian Pumps & Compressors Ltd. (Dalian Plant)	SPCN-DA	China
E465TS11	PT. Sulzer Indonesia (Purwakarta)	SC Purwakarta	Indonesia
E47111	Sulzer Pumps Finland Oy (Karhula Plant)	SPFIN-KO	Finland
E47512	Sulzer Pumps Sweden AB ()	SPSWE-VA	Sweden
E48413	Sulzer Pumps Spain S.A. (Burgos Plant)	SPSPA-BU	Spain
E48712	Sulzer Singapore Pte Ltd. (Singapore SC)	SC Singapore	Singapore
E48811	Sulzer Pumps Solutions Inc. (Easley PPC)	SPSI-EA	USA
E49511	Sulzer Electro-Mechanical Services (US) Inc. (Pasadena)	SC Pasadena	USA
E49513	Sulzer Electro-Mechanical Services (US) Inc. (Phoenix)	SC Phoenix	USA
E49515	Sulzer Electro-Mechanical Services (US) Inc. (Gillette)	SC Gillette	USA

Code	Site	Abbreviation	Country
E49517	Sulzer Electro-Mechanical Services (US) Inc. (Colton)	SC Colton	USA
E49611	Sulzer Chemtech USA Inc. (Tulsa)	CTUS-TU - site reporting data till closure	USA
E51612	Sulzer Pumps (US) Inc. (Portland Plant)	SPUSA-PO	USA
E51624	Sulzer Pumps (US) Inc. (Chattanooga SC)	SPUSA-CO	USA
E51629	Sulzer Pumps (US) Inc. (Barboursville PPC/PMC)	SPUSA-BA	USA
E51911	Sulzer Turbo Services Houston Inc. (La Porte)	SC Houston (Old La Porte Rd)	USA
E52011	Sulzer Pumps México, S.A. de C.V. (Cuautitlán Izcalli Plant)	SPMX-CU	Mexico
E52421	Sulzer Pumps Services (US) Inc. (Houston - Old Underwood Rd SC)	SC Houston (Old Underwood Rd)	USA
E55311	Sulzer Chemtech, S. de R.L. de C.V. (Cuautitlán Izcalli)	CTMX-CU	Mexico
E55411	Sulzer Brasil S.A. (Jundiaí Plant)	SBR-JF	Brazil
E55413	Sulzer Brasil S.A. (Macaé SC)	SC Macaé	Brazil
E56711	Alba Power Ltd (Netherley)	SC Netherley	UK
E58311	Sulzer Pumps (Canada) Inc. (Burnaby Plant)	SPCAN-BU	Canada
E60311	Sulzer Saudi Pump Company Limited (Riyadh)	SSPC-AL	Saudi Arabia
E60411	Sulzer Turbo Services Venlo B.V. (Lomm)	SC Venlo	Netherlands
E61511	PACA Pompes Services SASU (Paca SC)	SC Paca Velaux	France

Code	Site	Abbreviation	Country
E63111	Sulzer Turbo Services New Orleans Inc. (Belle Chasse)	SC New Orleans	USA
E63211	Sulzer Turbo Services Poland Sp. z o.o. (Lublin)	SC Lublin	Poland
E65411	Sulzer Mixpac USA Inc. (Salem NH)	ASMU-SA	USA
E65412	Sulzer Mixpac USA Inc. (PC Cox Ltd.) (Haslett)	ASMU-HA	USA
E65611	Sulzer Mixpac AG (Haag)	ASMS-HA	Switzerland
E66211	Sulzer Chemtech LLC (Serpukhov)	CTRU-SE	Russia
E66411	Sulzer Rotating Equipment Services (Canada) Ltd. (Edmonton TS)	SC Edmonton (TS)	Canada
E66911	Sulzer Pumps Suzhou Ltd (Suzhou Plant)	SPSZH	China
E67111	Sulzer Turbo Services Argentina S.A. (Buenos Aires)	SC Buenos Aires (Talcahuano)	Argentina
E68811	Sulzer Pumps Rus LLC (Moscow SC RES)	SC Moscow RES	Russia
E69008	Sulzer Electro Mechanical Services (UK) Limited (Birmingham)	SC Birmingham	UK
E693PERES02	Sulzer Australia Pty Ltd (Brisbane)	SC Brisbane	Australia
E70311	Sulzer Pumps Wastewater Brasil Ltda. (Curitiba)	SPBRA-CU	Brasil
E706PU11	Sulzer Pump Solutions Kunshan Co Ltd. (Kunshan)	SPKAN-KU	China
E71111	Sulzer Pumps Wastewater Germany GmbH (Bonn)	SPBNN-BO	Germany
E71611	Sulzer Pump Solutions Ireland Ltd (Wexford)	SPIRL-WE	Ireland

Code	Site	Abbreviation	Country
E71711	Sulzer Italy SRL (Vimodrone)	SPITA-VI	Italy
E72011	Sulzer Pumps Wastewater Netherlands BV (Maastricht-Airport)	SPNLD-MA	Netherlands
E72711	Sulzer Pumps Wastewater Spain S.A. (Rivas Vaciamadrid)	SPESP-RI	Spain
E73411	Sulzer Pumps Wastewater UK Ltd. (Crawley)	SPGBR-CR	UK
E74511	ProLab Netherlands B.V. (Arnhem)	CTPN-AR	Netherlands
E75111	GEKA GmbH Germany (Bechhofen)	ASGKD-BE	Germany
E75112	GEKA GmbH Germany (Bamberg)	ASGKD-BA	Germany
E75211	GEKA Manufacturing Corporation (Elgin)	ASGKUS-ME	USA
E75311	GEKA do Brasil (Sao Paulo)	ASGKBR-ME	Brasil
E75511	Sulzer Ensival Moret France (Saint Quentin Plant)	SEMF-SQ	France
E75611	Sulzer Ensival Moret Belgium (Thimister Plant)	SEMB-TH	Belgium
E77011	JWC Environmental LLC (Santa Ana)	JWCE-SA	USA