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Neuwiesenstrasse 15

8400 Winterthur

Switzerland

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CALCULATION OF THE CORPORATE CARBON FOOTPRINT 2021

SULZER AG

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CALCULATION OF THE CORPORATE CARBON FOOTPRINT 2021

SULZER AG

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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 and designed for Sulzer public disclosure**

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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. As part of a strategic approach to reduce its sustainability impact, Sulzer is trying 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, Scope 2, and 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-recognized 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 (CCF) for the reporting period is calculated to be

82 508.9 t of CO2e (Market-based)

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

- Sulzer's total Carbon Footprint decreased by 24.7% compared to last year.
- The reduction was mainly due to switch to non-fossil fuel electricity and decrease of flight-business travels.
- APS division managed to cut its electricity-related emissions by 74% through switching to non-fossil fuel electricity.
- RES and PE divisions are responsible for 73.9% of CCF.
- Emissions released from RES- AME and PE-ENERGY business units constitute 48% of CCF.
- Electricity is Sulzer's largest source of emissions with the share of 68% of total CCF.

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 2021 (reporting Period 1st October 2020 to 30th September 2021). 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 has been calculating Sulzer's carbon emissions since the year2020.

1.2 Purpose and Objectives

The agreed objective for the project described in this report includes the calculation of Sulzer's CCF worldwide as well as for all divisions and business units for Sulzer operations as of September 2021 thus including the former APS division. While the naming convention has evolved after the demerger of the former APS division, this report refers to the terminology in force at the time of the reporting period. This was chosen in consideration of homogeneity in the denominations. 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 detailed research on the required secondary data (emission factors) and applied all data using a tailor-made Excel tool for the calculation.

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. Table 1 shows divisions and business units within Sulzer's organizational boundary.

Table 1.Divisions and Business units within Sulzer's organizational boundary.

Holding	Division	Business Unit
Sulzer AG	Pumps equipment (PE)	• ENERGY • INDUSTRY • WATER
	Rotating equipment services (RES)	• AME • APAC • EMEA • GTS
	Chemtech (CT)	• AME • APAC • ERA • INME
	APS	• ADDENCARE • BEAUTY

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. Accordingly, it was decided to include the following emission sources for the 2021 calculation as shown in Table 2. For having a homogeneous reporting with previous years:

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.

Regarding the business travels-flight, Ramboll received calculated emissions from Sulzer's supplier. According to Sulzer's supplier, Business travel emissions related to flight calculated using DEFRA's Methodology and Emission Factors. According to the supplier data, it was based on the distance

(mileage) of each flight segment. The carbon emissions and mileage for each flight segment is calculated separately and then added together to provide a total. This is the same method that Ramboll applies for calculating flight-related emissions.

Emissions related to business travels- rental cars calculated as the average combined fuel economy for each car class driven. Furthermore, the calculation is based on the amount of fuel consumed by dividing the total distance driven in the car class by the average combined fuel economy for that car class. Whilst this approach introduces a certain margin of error to the calculation, it is expected to be of minor importance to the overall corporate carbon footprint.

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 non-fossil fuel 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.

2.6 Recalculation of last year CCF (reporting year 2019-20)

Sulzer's CCF for the reporting period of 2019-20 was calculated by Ramboll as well. In the preparation phase of CCF calculation for the reporting period 2020-21, Ramboll performed a due diligence/quality check on the CCF 2019-20 calculation and identified some minor errors. Thus, the CCF for the reporting period 2019-20 decreased by 1.4% from the originally calculated 111,176 tCO2eq to 109,583 tCO2eq. Changes resulted from an error in selecting an emission factor for electricity consumption and considering refrigerant use in the system boundary (which shouldn't have been in the reporting year of 20219-20). All comparisons in this report are based on the recalculated CCF for the reporting period of 2019-20.

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 and 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. 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). 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.

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 from data dump have been randomly 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 2021
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 2021
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 • South Africa

Emission source	Categories	Sources
Electricity (Market-based)	Market-based emissions factors for electricity could be obtained for all sites from providers.	All Sulzer sites covered by the environmental reporting
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 2021 Global Emissions Factor
Business travel	Air travel Rental Cars	DEFRA 2021 (applied by Hertz)
Indirect emissions related to energy and fuels	Fuels Company vehicles Electricity Non-fossil fuel electricity District heating	DEFRA 2021 DEFRA 2021 Please refer to Electricity Ramboll own research based on data form GaBi Professional – Energy Extension GEMIS 4.95, DEFRA 2021

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. Site ESH managers enter the Environmental data which is reviewed and validated on a Divisional level. The final data is checked and aggregated on a Group ESH level. 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 and external (supplier information) management and accounting systems.

3.3.2 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 (Market-based[1])

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 is calculated to be

82508.9 t of CO_2e (Market-based)

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 54.1%, to be the main contributor to the CCF in 2020-21. The share of scope 3 emissions of Sulzer can be increased in the future if the system boundary of scope 3 was expanded.

Table 5. Total carbon emissions and emissions per scope (Market-based).

Scope	Source of Emission	Emission [t CO2eq]	Share [%]
Scope 1	Company vehicles Fuel	18,419.3	22.3%
Scope 2	District Heating Electricity	44,668.2	54.1%
Scope 3	Company vehicles_ Upstream District Heating_ Upstream Electricity_ Upstream Fuel_ Upstream Rental Cars Flight	19,421.3	23.5%
Total		**82,508.9**	**100.00%**

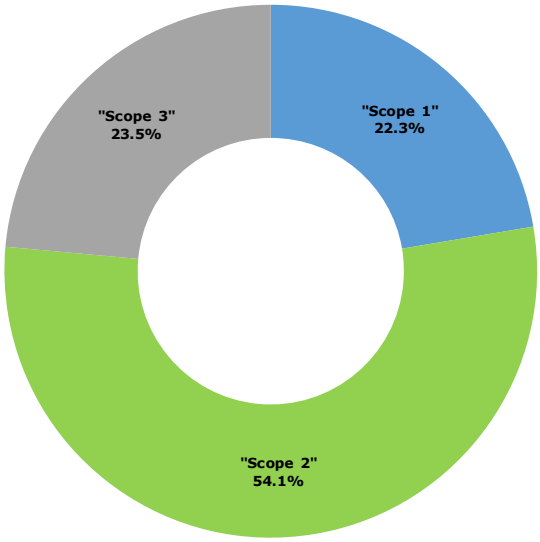

Figure 1. Scope of emissions (Market-based).

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

4.2 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 6 and Figure 2 display Sulzer's emissions per emissions source as defined by the operational boundary.

Table 6. Source of Emissions and their share in CCF.

Source of Emissions	Sum of Emission [tCO2]	Share [%]
Company vehicles	5,927.8	7.2%
Company vehicles_ Upstream	1,487.0	1.8%
District Heating	1,108.1	1.3%
District Heating_ Upstream	215.4	0.3%
Electricity	43,560.1	52.8%
Electricity_ Upstream	12,466.8	15.1%
Flight	2,952.0	3.6%
Fuel	12,491.6	15.1%
Fuel_ Upstream	2,005.3	2.4%
Rental Cars	294.8	0.4%
Total	**82,508.9**	**100.0%**

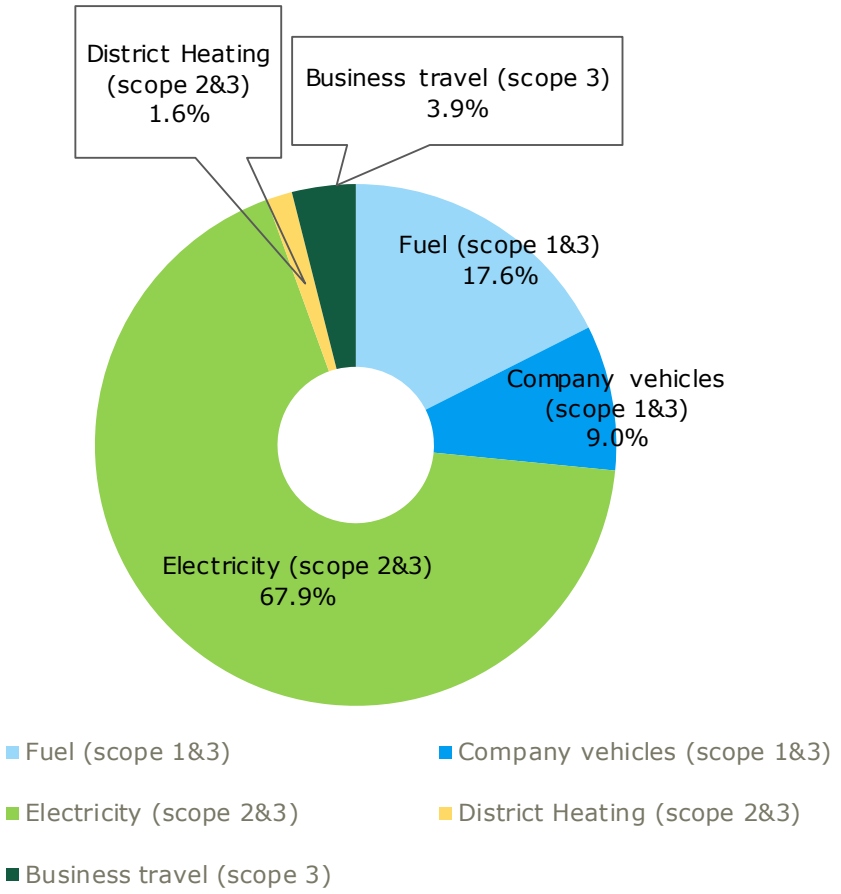

Figure 2. Source of emissions.

Distinction between emissions sources quickly reveals electricity to be the largest source of emissions (52.8%). Considering the indirect emissions related to electricity (scope 3), in total about

68% of emissions are related to electricity consumption. Total indirect (upstream) emissions related to energy and fuels present further emissions sources that yield a share of 17.6 % of the overall CCF in 202-21.

4.3 Carbon Footprint per Divisions (market-based)

In order for tracking the GHG emissions in Divisions, total emissions, emissions per scope and the source of emission were assigned to them. Table 7 and Figure 3 display Sulzer's emissions per Divisions. In this report, emissions related to business travels (flights and rental car) with unknown division were allocated to Headquarter (HQ) of Sulzer. Emissions categorized as "Not mapped-name of division" are also related to business travels (flights and rental cars) but their business units are unknown. For example, "Not mapped- APS" is accounted for the APS division but could not be allocated to a Business unit in APS. Similarly, "Not mapped- CT", "Not mapped- PE", and "Not mapped- RES" were allocated to CT, PE, and RES divisions but their business units were unknown. Furthermore, total emissions from rental cars allocated only to Headquarter (HQ) due to the lack of data in division level for rental cars.

Table 7. Carbon footprint per divisions.

Division	Sum of Emission [tCO2]
APS	10826.4
CT	9451.9
PE	29624.0
RES	31392.3
HQ	1214.3
Grand Total	**82508.9**

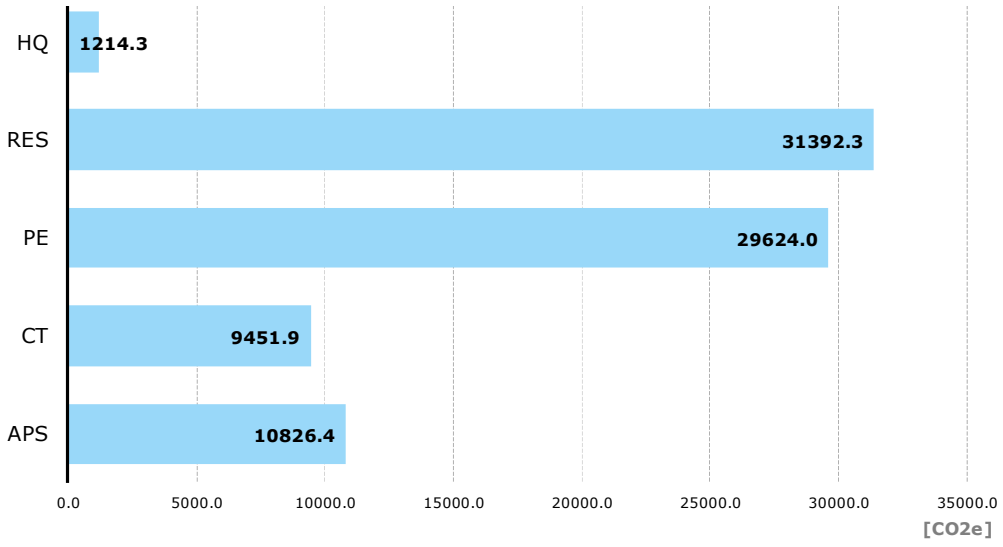

Figure 3. Emissions per divisions.

Similar to the corporate carbon footprint, the main contributor to the divisions carbon footprint in the reporting year were scope 2 emissions (Figure 4) and in particular emissions related to the consumption of electricity.

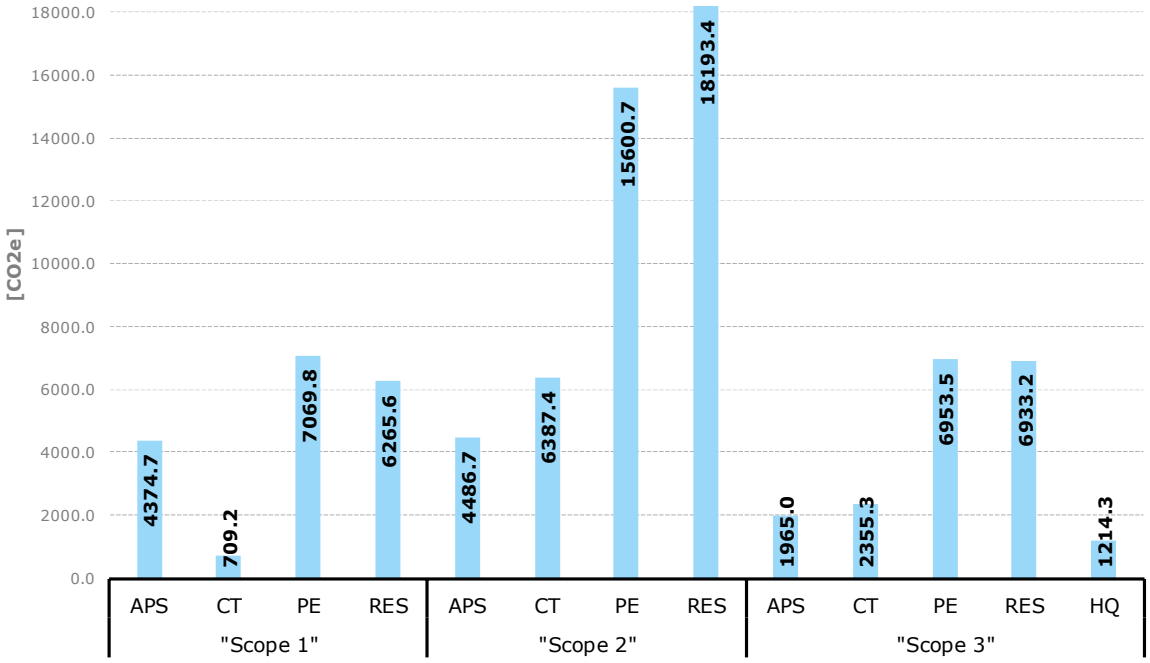

Figure 4. Comparison of division based on their contribution to scope of emissions.

Distinction between the emissions assigned to divisions reveals that RES (38%) and PE (35.9%) divisions were responsible for 73.9% of the corporate carbon footprint in the reporting period 2020-21 (Figure 5).

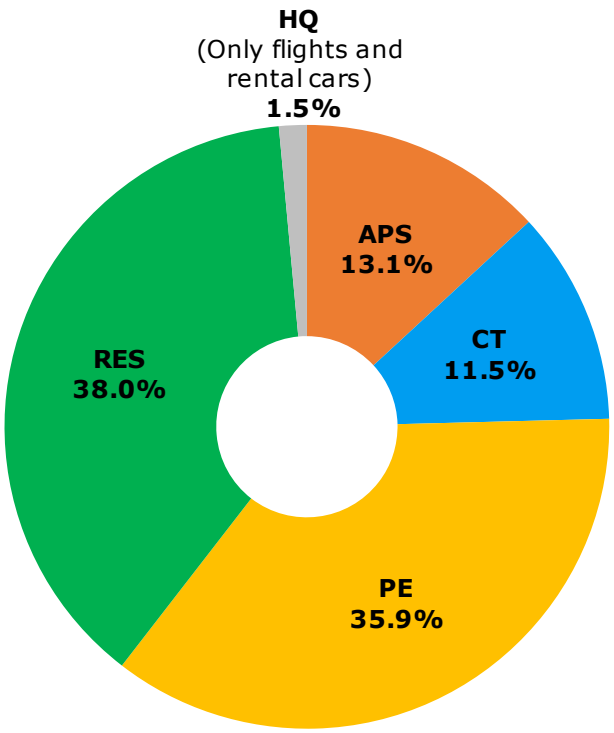

Figure 5. Share of each division in the CCF of Sulzer.

4.4 Electricity-related emissions (Market-based)

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 8 presents Scope 2 electricity-related emissions per business units of Sulzer in the reporting period. Furthermore, table 7 presents an overview of Sulzer's sites that emit at least 200 tCO_2eq of Scope 2 electricity emissions.

The source of 68% of emissions in Sulzer is electricity (Figure 2). Out of total electricity related emissions, RES (41%) and PE (35%) are responsible for 76% of it. Moreover, emissions associated with electricity consumption of RES and PE divisions contribute to 52% of Sulzer's corporate carbon footprint (CCF) in the reporting period 2020-21 (Table 8).

Table 8. Electricity-related emissions per divisions.

Division	Scope 2 (Electricity)	Scope 3 (Electricity)	Sum of scope 2 and 3 (Electricity)	Share (%) in electricity-related emissions	Share (%) in Sulzer's CCF
APS	4486.7	1269.5	5756.2	10%	7%
CT	6099.0	1694.2	7793.1	14%	9%
PE	14841.8	4687.1	19528.9	35%	24%
RES	18132.6	4816.1	22948.7	41%	28%
Total	**43560.1**	**12466.8**	**56026.9**	**100%**	**68%**

5. DISCUSSION OF RESULTS

In this chapter various key messages were derived based on the displayed results and the changes compared to last year CCF were discussed.

5.1 Total GHG emissions & overview

- Total GHG emissions decreased by 24.7% compared to 2019. The recalculated market-based CCF in the reporting year of 2019-20 was 109,582 tCO_2e (the initially calculated CCF was 111,176 tCO_2e) which was reduced to 82508.9 tCO_2e (Market-based) in the reporting period of 2020-21.
- Electricity consumption is Sulzer's largest source of emissions. Around 68% 0f Sulzer corporate carbon footprint directly and indirectly (52.8% of total CCF in scope 2 and 15.1% of total CCF in scope 3) originated in the consumption of electricity.
- Fuels are the second largest emissions source in the reporting year of 2020-21. Emissions associated with the consumption of fuels constitute 17.5% of CCF (15.1% of total CCF in scope 1 and 2.4% of total CCF in scope 3).
- Emissions related to flights were decreased from 10,040 tCO_2eq in the reporting period of 2019-20 to 2,951 tCO_2eq in 2020-21 which indicates 70% reduction of flight related emissions compared to the last year.

5.2 Largest Sulzer emitter divisions and business units

- RES (38%) and PE (35.9%) divisions were responsible for 73.9% of the corporate carbon footprint in the reporting period 2020-21 (Figure 5.
- In respect to electricity, RES (41%) and PE (35%) divisions have also the biggest share of electricity-related emissions in 2020-21 reporting period.

5.3 CCF comparison between 2019-20 and 2020-21

In the reporting period year of 2020-21 the total carbon footprint of all divisions was decreased compared to 2019-20. Carbon footprint of Sulzer decreased from 109,582 tCO_2e (recalculated CCF for the reporting year 2019-20) to 82508.9 tCO2e (Market-based) in the reporting year 2020-21 (Table 9). The reduced emissions calculated as 27,073 tCO_2e which indicates 24.7% percent decrease compared to the last year (Figure 6. Comparison of CCF between the reporting years of 2019-20 and FY 2020-21.Table 9).

Although the total carbon footprint of all divisions was decreased compared to the last year, an increase in the consumption of electricity was observed in RES and CT divisions. The results also reveal that emissions related to fuels was increased in PE division compared to last year (Figure 6).

Table 9. Comparison of emissions per divisions between 2019-20 and 2020-21

Division	2019-20 Total Emissions [t CO2e]	2020-21 Total Emissions [t CO2e]	Change (%)
APS	23,597.8	10826.4	-54.1%
CT	10,228.7	9451.9	-7.6%
PE	38,161.7	29623.9	-22.4%
RES	33,328.6	31392.3	-5.8%
Headquarter (HQ) [only flights and rental cars]	4,265.6	1214.3	-71.5%
TOTAL	**109,582.3**	**82508.8**	**-24.7%**

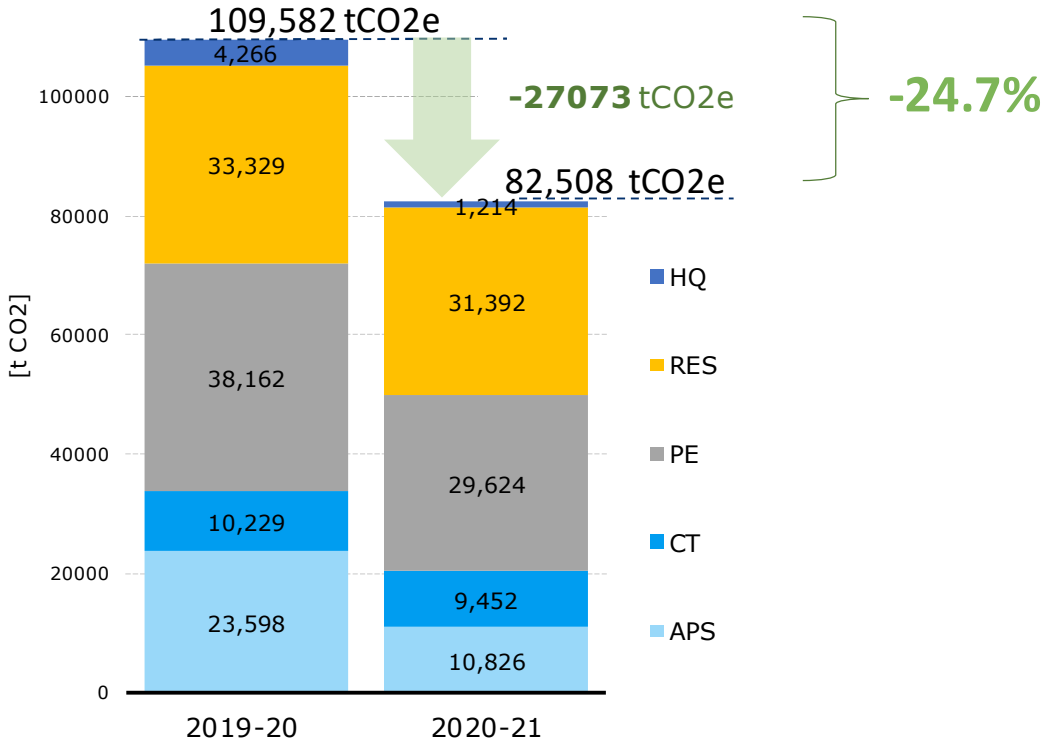

Figure 6. Comparison of CCF between the reporting years of 2019-20 and FY 2020-21.

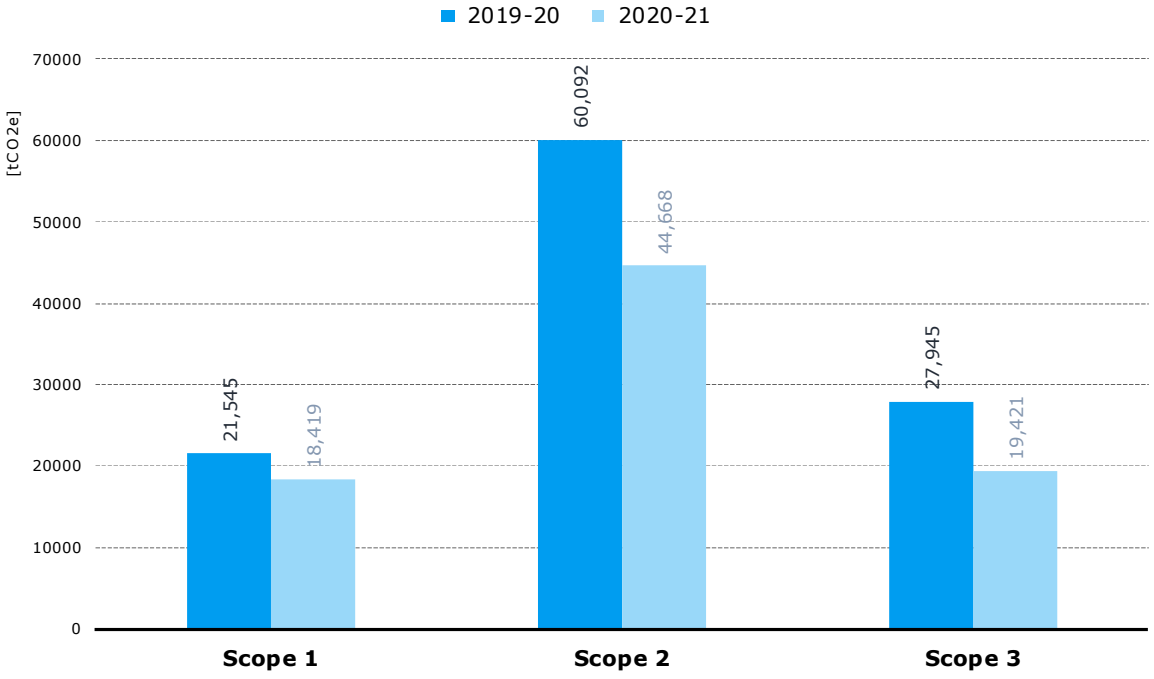

Figure 7. Comparison of the scope of emissions between the reporting year of 2019-20 and 2020-21.

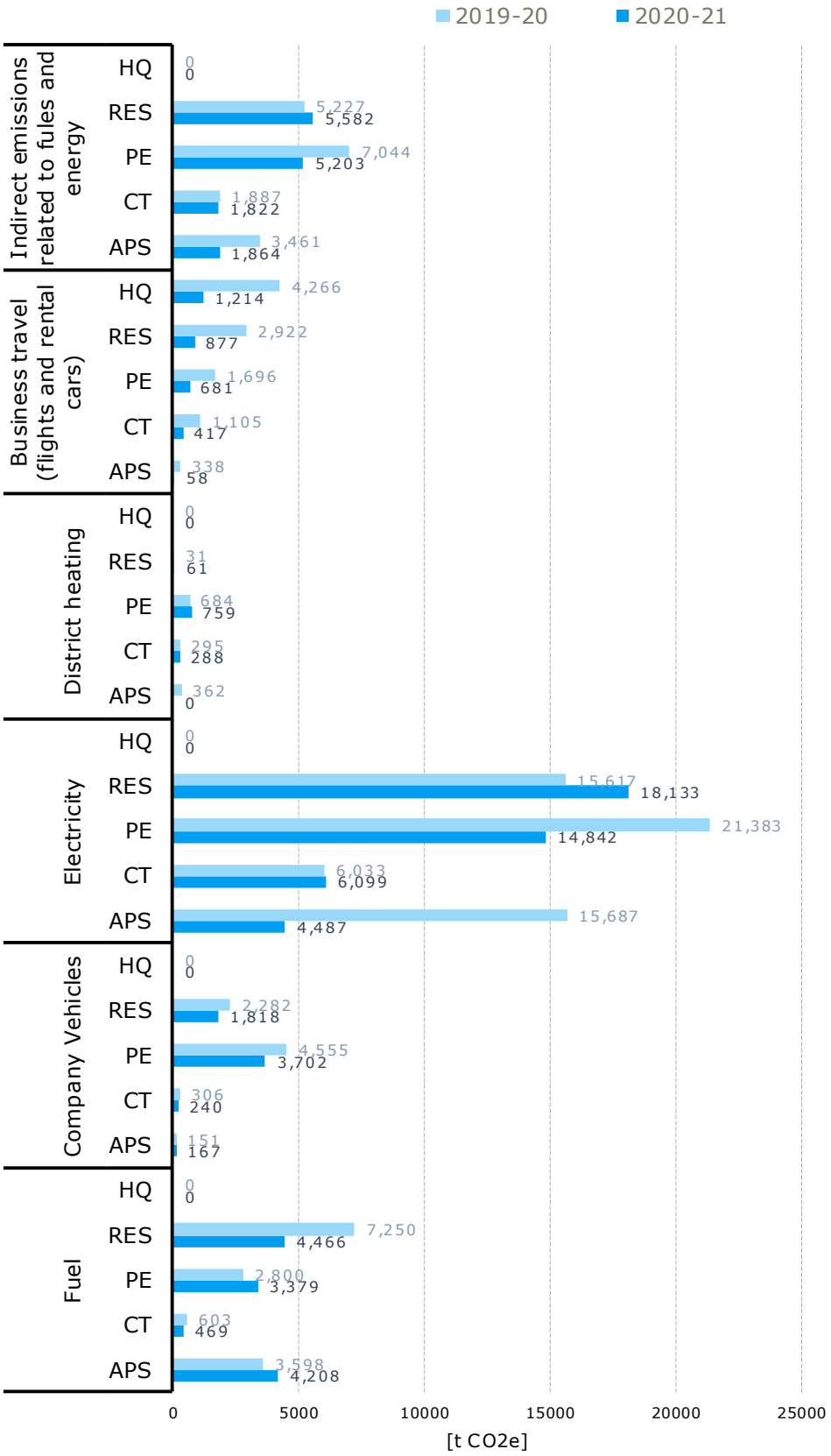

Figure 8. Comparison of the source of emissions per divisions between the reporting years of 2019-20 and 2020-21.

5.4 Reduction of emissions compared to last year

The reduction of emissions compared to last year was achieved mainly due to a lower carbon content of the electricity mix used by Sulzer. This improved carbon content is due to the switching to non-fossil fuel electricity and accordingly a significant decrease in the volume of emissions. The share of switching to non-fossil fuel electricity in the decrease of total CCF is around 60% (-16,103 tCO_2e out of 27,073 tCO_2e). Switching to non-fossil fuel electricity is very important here because this reduction was achieved whilst the total consumption of electricity increased by 47,125 GJ (8.8%).

APS division managed to reduce its total emissions by around 54% compared to last year. Emissions in APS decreased from 23,598 tCO_2e in 2019-20 to 10,826 tCO_2e in 2020-21. It was achieved mainly due for cutting 74% of its electricity-related emissions from 15,684 tCO_2e to 4,484 tCO_2e.

Table 10. Change in electricity-related emissions compared to last year.

	2019-20	2020-21	Difference
Electricity, Scope 2 [t CO2e]	58,720.4	43,560.0	-15,160.3
Electricity, Scope 3 [t CO2e]	13,409.4	12,466.8	-942.5
Total electricity related, CCF [t CO2e]	72,129.8	56,026.9	-16,102.8
Total electricity Consumption [GJ]	489,596.0	536,721.9	+47,125.87

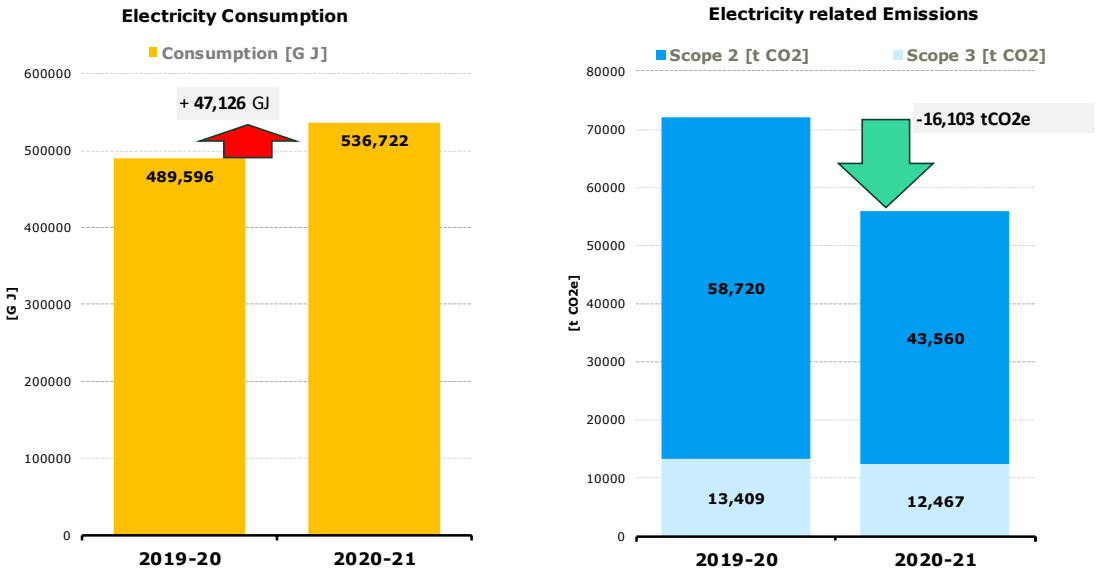

Figure 9. Reduction of electricity-related emissions in the reporting period of 2020-21 compared to 2019-20 while the electricity consumption increased in the same period.

Emissions related to flights decreased 70% compared to last year most certainly driven by the pandemic impact. The share of flight-related emissions in the total reduction of CCF is 33%. In other words, 82% of the total reduction of Sulzer's CCF is associated with two emission sources that are electricity and flight-related business travels.

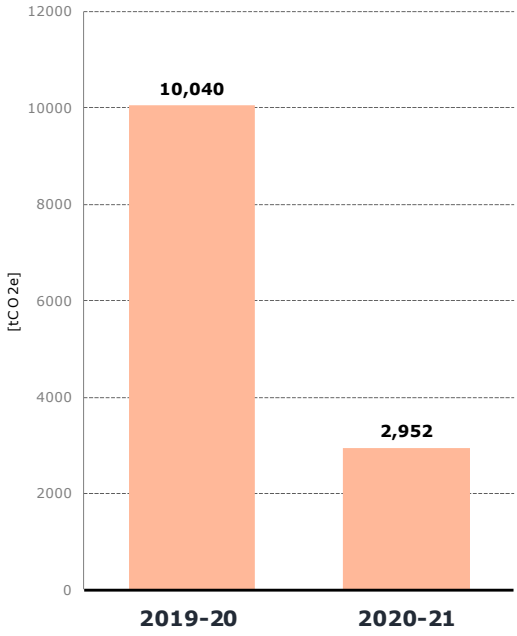

Figure 10. Change in flight-related emissions compared to CCF 2019-20.

6. RECOMMENDATIONS

This chapter highlights the further opportunities and hot spots for reducing carbon emissions based on the analyses of results.

6.1 Switching to non-fossil fuel electricity

Switching to non-fossil fuel electricity is one of the realistic short-term and mid-term decarbonization strategies for achieving net-zero targets. It can significantly reduce scope 2 and scope 3 emissions. Cutting 74% of APS

6.2 Switching from fuels to electricity

Fuel is the second largest emission source of Sulzer. Therefore, any reduction in the consumption of fuels can significantly reduce scope 1 and scope 3 emissions. The reduction in fuels consumption can be achieved through technological initiatives that replace fuels with electricity (if possible). These types of initiatives will shift emissions from scope 1 to scope 2, however, switching to non-fossil fuel electricity has already been identified as the next step to minimize the CCF.

6.3 Reducing scope 3 emissions through changing travel behaviors

It has always been difficult for organizations to change air travel behaviors to reduce their carbon footprint. However, evidence shows that COVID-19 travel restrictions were a transformative event that changed not only individuals and organizations business travel behaviors by switching to remote meetings and practice such as remote factory acceptance tests, but also their staff perceptions and reduction commitments as well. It seems that lessons learned from Covid-19 travel restrictions can help organizations to keep some of the practices and policies that sustain strategic business air travel reductions. Keeping some of these business travel behaviors after travel restrictions can significantly contribute to the reduction of scope 3 emissions in the upcoming years.