

CARBON FOOTPRINT ASSESSMENT

Prepared for Reunert Limited
December 2018

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Carbon footprint summary



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EXECUTIVE SUMMARY

Terra Firma Solutions (Pty) Ltd were commissioned by Reunert Limited to assist and develop their carbon footprint for the reporting period 01/10/2017 to 30/09/2018.

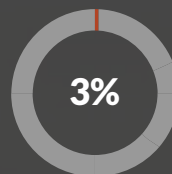
The carbon footprint inventory includes 56 Reunert Limited entities. Reunert has 100% financial control over all entities included in the carbon footprint, with the exception of CBI Electric Telecom Cables (Pty) Ltd, which is a joint venture (50% financial control). Only franchises where Reunert holds majority of share have been included in the scope of this carbon footprint assessment.

The carbon footprint is based on the financial control approach.

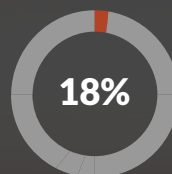
The operational boundaries include scope 1 direct emissions (mobile combustion and stationary combustion), scope 2 indirect emissions (electricity consumption in Reunert owned properties) and scope 3 indirect emissions (electricity consumption in leased properties and warehousing facilities, mobile combustion in leased vehicles, business travel, employee commute, waste, water and material use).



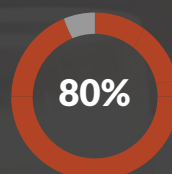
FOLLOWING THE GREENHOUSE GAS PROTOCOL



SCOPE 1: **6 913** tCO₂e



SCOPE 2: **46 570** tCO₂e



SCOPE 3: **212 498** tCO₂e



RECOMMENDATIONS



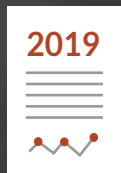
Reduce carbon footprint



Improve data quality



Set KPI's & targets



Consider Carbon Tax Implications

ENERGY EFFICIENCY

Energy efficiency assessments are a valuable exercise to obtain a detailed database of energy opportunities. The assessments investigate voltage and power, lighting, heating ventilation and air conditioning (HVAC) and IT equipment to ensure the building is efficient and is being billed the correct amount.



RENEWABLE ENERGY

In 2018 a 297 kW solar PV system was installed at Reunert Park.

The total expected annual production for the Reunert Park site is 480 MWh, with the potential emissions reductions of 456 tCO₂e. Renewable energy, especially solar PV systems on buildings rooftops, can deliver significant cost and emissions reductions. A solar PV feasibility assessment could assist Reunert in identifying sites with the greatest solar PV potential.



INTRODUCTION

PROJECT BACKGROUND

Businesses around the world are increasingly confronted with the topic of climate change, social investment and environmental issues.

It has become apparent that more businesses are fast recognising that their response (or lack thereof) to these issues, poses both risks and opportunities to their triple bottom line.

People, planet and profits.

Reunert has decided to embark on this journey by engaging with Terra Firma Solutions to undertake a Carbon Footprint Assessment (CFA).

Embarking on the aforementioned assessments is an important step in determining the environmental impact of the company as it highlights key areas to focus on emission reductions and can ultimately lead to increased profits from lower energy and fossil fuel costs.

THE KEY COMPANY DRIVERS FOR EMBARKING ON THE CARBON FOOTPRINT ASSESSMENT ARE:

- Set emission reduction goals against which the company can be measured
- Increase operational efficiency and reduce operating costs
- Implement carbon management plans
- Position Reunert Limited as a climate change leader in its sector
- Enhance the level of data accuracy throughout the company
- Differentiate and increase possible market share

CLIENT BACKGROUND

Reunert manages a portfolio of businesses in the fields of Electrical Engineering, Information Communication Technologies (ICT) and Applied Electronics.

The group was established in 1888 by Theodore Reunert and Otto Lenz, and has contributed to the South African economy in numerous ways over the past 130 years.

The group was listed on the JSE in 1948, and is included in the industrial goods and services (electronic and electrical equipment) sector of the JSE. The group primarily operates in South Africa with smaller operations in Australia, Lesotho, Sweden, the USA, Zambia and Zimbabwe. Group headquarters are located in Woodmead, Johannesburg, South Africa.

PROJECT TEAM

NAME	COMPANY	RESPONSIBILITY
Carina de Klerk	Reunert Limited	Project Sponsor
Caitlin Keam	Terra Firma Solutions	Analytics Manager
Grete Simanauskaite	Terra Firma Solutions	Carbon Data Analyst

ELECTRICAL ENGINEERING

THE ELECTRICAL ENGINEERING SEGMENT COMPRISES BUSINESS UNITS WITH A SIGNIFICANT FOOTPRINT ACROSS THE ELECTRICAL AND TELECOMMUNICATIONS INFRASTRUCTURE INDUSTRIES.

INFORMATION COMMUNICATION TECHNOLOGIES

THE SEGMENT IS ADAPTING TO THE CHANGING ICT LANDSCAPE. WE ARE LEVERAGING OUR STRONG BRANDS, WIDE-REACHING DISTRIBUTION AND SERVICE NETWORK TO BUILD A MODERN ICT SERVICE PROVIDER.

APPLIED ELECTRONICS

APPLIED ELECTRONICS DEVELOPS, MANUFACTURES AND DISTRIBUTES HIGH-TECHNOLOGY ELECTRONICS TO A WIDE RANGE OF INDUSTRIES GLOBALLY.

<https://www.reunert.co.za/>

PROJECT DESCRIPTION

PROJECT SCOPE

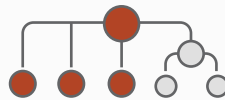
ORGANISATIONAL BOUNDARIES

Organisational boundaries determine whether Greenhouse Gas reporting is done according to one of these approaches:



EQUITY SHARE APPROACH

A company accounts for the emissions from operations according to its share in equity of the operation, where equity share reflects economic interest.



CONTROL APPROACH

Emissions are accounted for from operations which are under the direct control of the parent company; this can be based on either financial control or operational control.

CONTROL APPROACH

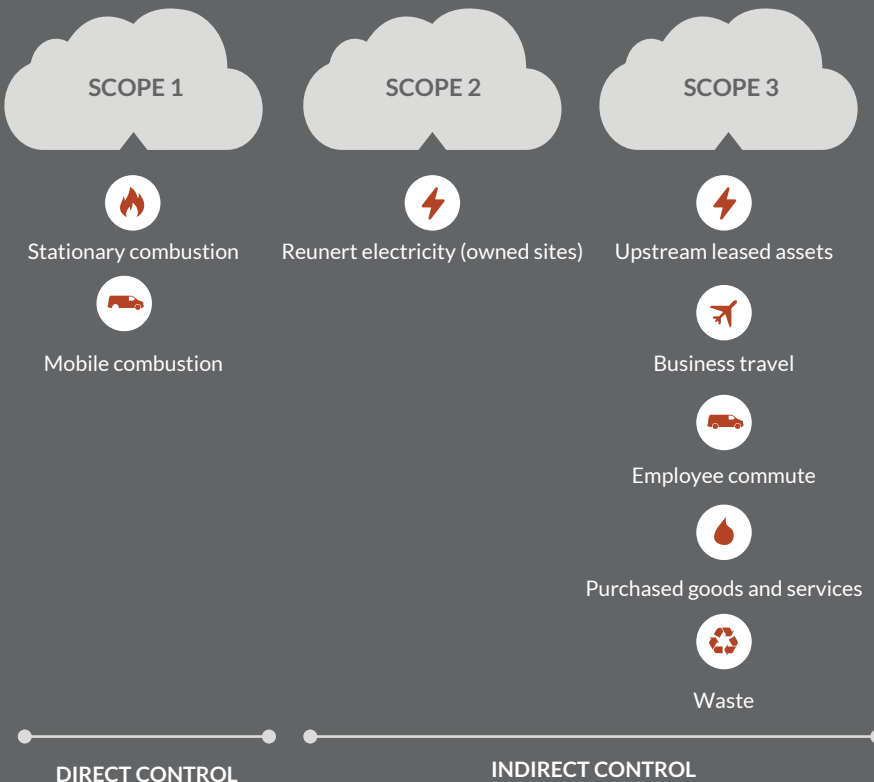
FINANCIAL AND OPERATIONAL

Financial: Can direct the financial policies with the view to gaining economic benefit.

Operational: Can direct operational policies at the operation.

REUNERT HAS CHOSEN THE FINANCIAL CONTROL APPROACH TO MEASURE THE ORGANISATIONS CARBON FOOTPRINT

OPERATIONAL BOUNDARIES



DATA SOURCES

ACTIVITY DATA

- Electricity usage
- Fuel usage
- Transport
- Waste
- Goods and Services

EMISSIONS FACTORS

- DEFRA 2018
- Eskom Annual Report 2018
- IPCC 2006

CARBON FOOTPRINT RESULTS

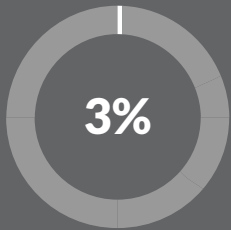
The total greenhouse gas emissions for Reunert Limited have been calculated at **265 981** tonnes of CO₂e, following the Greenhouse Gas Protocol.

265 981 tCO₂e
 FOR THE PERIOD 2017 - 2018
 FOLLOWING THE
 GREENHOUSE GAS PROTOCOL

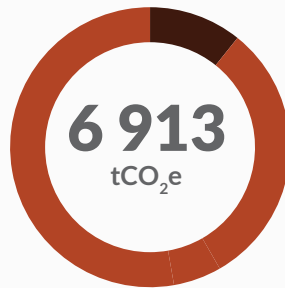




Emissions associated with material use were the highest contributor to the carbon footprint at 187 012 tCO₂e (71% of emissions). Electricity consumed by electricity consumption in Reunert owned sites follow at 46 570 tCO₂e (18% of emissions).

SCOPE 1 % OF TOTAL EMISSIONS

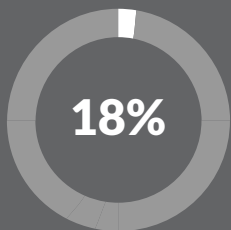


SCOPE 1 EMISSIONS



- 66%  Reunert stationary consumption [4 559 tCO₂e]
- 34%  Reunert mobile consumption [2 353 tCO₂e]

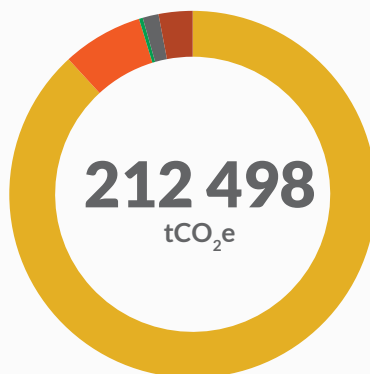
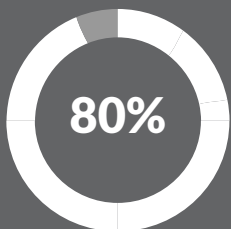
SCOPE 2 % OF TOTAL EMISSIONS








SCOPE 2 EMISSIONS

- 100%  Reunert Electricity (Owned sites) [46 570 tCO₂e]

SCOPE 3 % OF TOTAL EMISSIONS



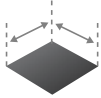


SCOPE 3 EMISSIONS

- 88%  Purchased goods, services [187 353 tCO₂e]
- 7%  Employee Commute [15 099 tCO₂e]
- 0.3%  Waste [707 tCO₂e]
- 1%  Business Travel [2 986 tCO₂e]
- 3%  Upstream Leased Assets [6 353 tCO₂e]

BENCHMARKING

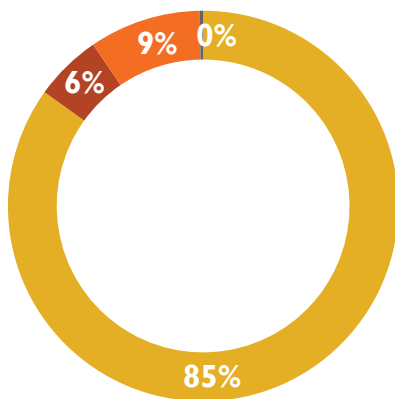
KEY PERFORMANCE INDICATORS

Total Scope 1 and 2 emissions per meter squared, per full time employee and revenue.

	2017	2018	% change
 tCO ₂ e PER METER SQUARED	0.28	0.21	-25%
 tCO ₂ e PER FULL TIME -EMPLOYEE	11.25	9.72	-14%
 tCO ₂ e PER FULL TIME REVENUE	6.12	4.95	-19%

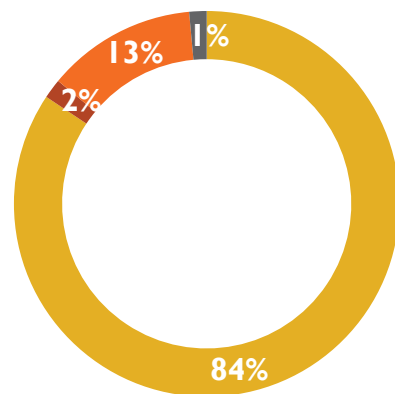
BENCHMARKING PER DIVISION

Scope 1 Emissions per Business Division



■ Electrical Engineering ■ ICT ■ Applied Electronics ■ Other

Scope 2 Emissions per Business Division



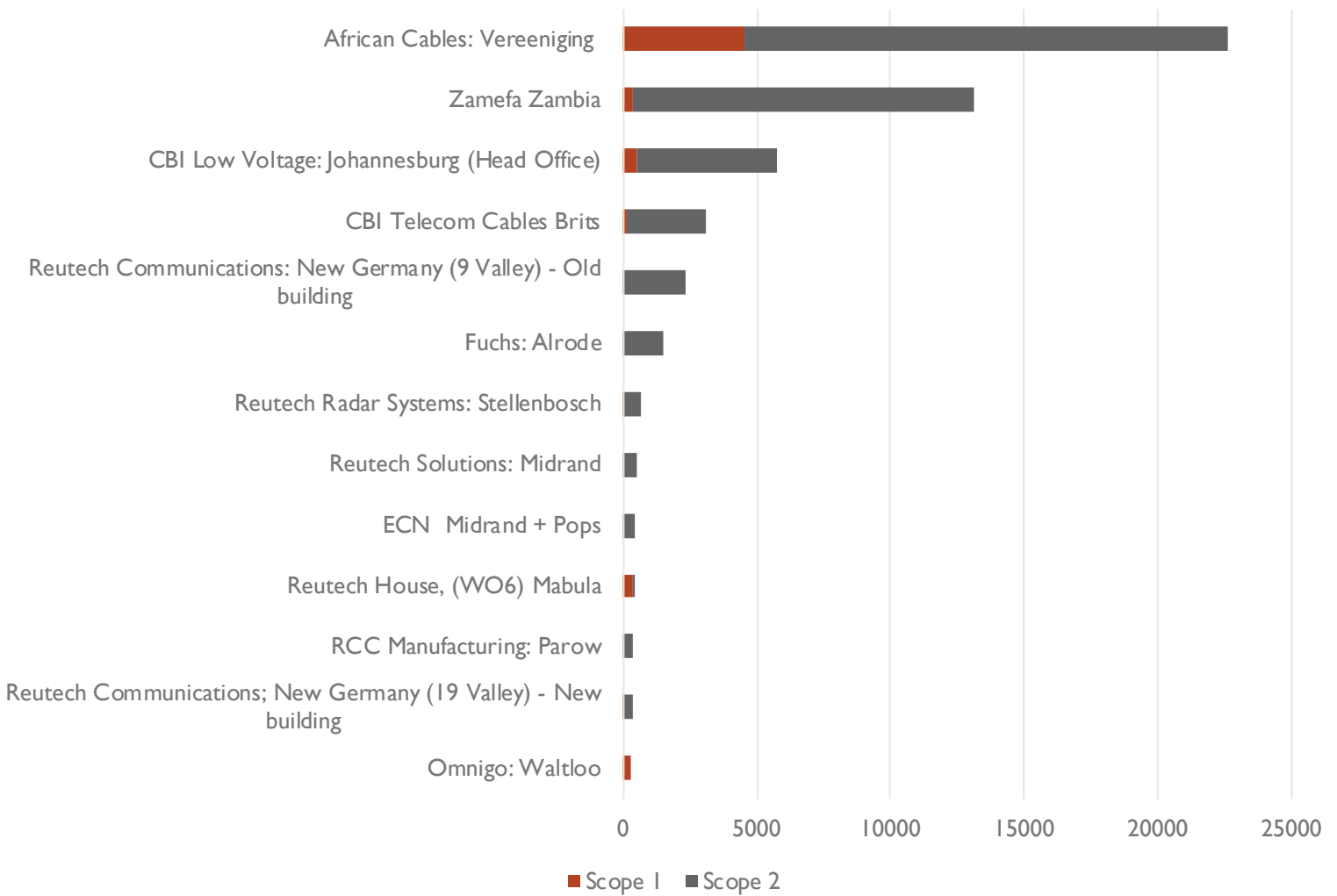
■ Electrical Engineering ■ ICT ■ Applied Electronics ■ Other

BENCHMARKING

SITE (ENTITY) BENCHMARKING

Reunert Group buildings (entities) were benchmarked using Scope 1 and Scope 2 emissions. Only buildings which amount to more than 1% of total Scope 1 and Scope 2 emissions are displayed below.

Entity Benchmarking (Scope 1 and 2)



BENCHMARKING

YEAR-ON-YEAR

		Total tCO ₂ e		2017 vs 2018 %
Scope	Emissions Source	2017	2018	Change
Scope 1	Diesel	426	404	-5%
	Natural Gas	3 761	3 690	-2%
	LPG	130	210	62%
	Stationary Combustion	4 317	4 305	0%
	Stationary Combustion JV		2	n/a
	Oil	7	240	3437%
	Lubricants	2	9	378%
	Stationary Fuel Non-Energy	21	250	1104%
	Stationary Fuel Non-Energy JV		3	n/a
	Diesel (mobile)	1 156	1 172	1%
	Petrol (mobile)	1 147	1 050	-8%
	LPG (mobile)	22	-	-100%
	Mobile Combustion	2 325	2 223	-4%
	Mobile Combustion JV	169	131	-23%
Total Scope 1 Reunert		6 493	6 777	4%
Total Scope 1 JV		169	136	-20%
Total Scope 1		6 662	6 913	4%
Scope 2	Electricity	51 778*	43 641	-16%
	Electricity JV	4 509	2 928	-35%
Total Scope 2 Reunert		51 778*	43 641	-16%
Total Scope 2 JV		4 509	2 928	-35%
Total Scope 2		56 287	46 570	-17%
Scope 3	Material use	181 778	187 012	3%
	Outsourced warehousing	129	231	79%
	Water supply	100	110	10%
	Purchased goods, services	182 007	187 353	3%
	Employee Commute	-	15 099	n/a
	Transport and distribution**	-	-	n/a
	Water treatment	290	476	64%
	Waste disposal	336	231	-31%
	Waste	626	707	13%
	Business Travel	2 654	2 986	13%
	Mobile Fuel	68	208	205%
	Purchased electricity	6 226	6 145	-1%
Upstream leased assets	6 294	6 353	1%	
Total Scope 3		191 580	212 498	11%
Total tCO₂e emissions (Scope 1, 2 & 3)		254 530	265 981	4%

* Emissions for Zambia were recalculated

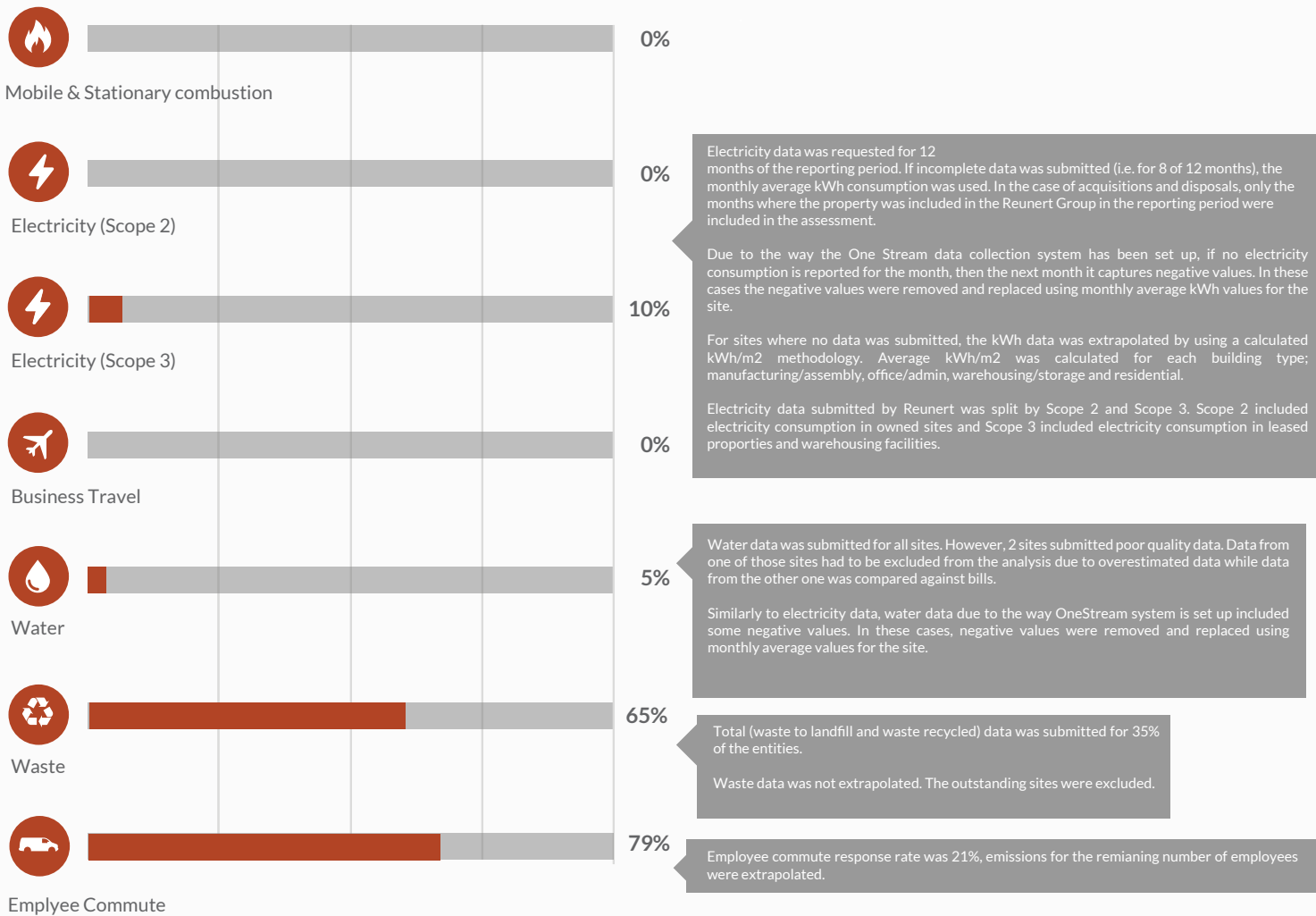
** Transportation and distribution emission were excluded in 2018 due to data collection barriers. The amount of 319 542 tCO₂e in 2017 was excluded as it skews year-on-years comparisons.

Notes:

- Terra Firma Solutions did not conduct the 2017 assessment, and therefore cannot attest to the accuracy of the data or calculations.
- Mobile fuels showed no significant changes
- Stationary fuel emissions have increased due to increase in oil usage for stationary combustion processes.
- Fugitive emissions were present but not reported on due to immateriality and lack of data.
- Electricity and water consumption data was extrapolated for the missing months. For sites with no electricity data, electricity consumption was extrapolated using kWh/m² values for the same type of building types within the group.
- Employee commute survey was conducted within the Reunert group for the first time. Information for missing data was extrapolated.
- Transport and distribution emissions were not accounted for in 2018 carbon footprint assessment due to insufficient and underestimated data. Year-on-year comparison excludes transport and distribution emissions.
- Business travel: no significant changes.
- Outsourced warehousing emissions have increased in 2018 since electricity consumption data for warehousing in 2017 was not available.
- Waste to landfill and recycled waste emissions were included.
- For year-on-year comparison, 2017 emissions for electricity purchased from Zambia were recalculated using a more comprehensive emission factor.

DATA GAP ANALYSIS

The image below shows gaps in the data collection process. It is recommended that non-financial data is collected and reviewed on a monthly basis to avoid missing data or appearance of negative values. Monthly data capture and review will enhance data quality and completeness.



DATA IMPROVEMENT RECOMMENDATIONS

DATA COLLECTION

- Improve transport and distribution data collection
- Better capture of water meter data from different sources. Smart water meter installation could help to better collect alternative water sources.
- Extend the scope of audits for water and electricity data against the bills. Include highest consumers from 2018 into the scope of audits.
- Waste reporting should be obligatory for all facilities.

ONESTREAM SYSTEM IMPROVEMENTS

- System should allow capturing monthly in addition to year-to-date data.
- System should capture information on building/facility size, division and ownership type (owned or leased).
- The system should make it mandatory to include monthly data.
- System should flag any negative values

TRAINING

- Carbon Footprint workshop for data collectors and capturers to improve data collection and OneStream monthly reporting process.
- Carbon Footprint workshop could target financial and operational managers for each facility.
- The workshop could include but may not be limited to the following topics:
 - Importance of carbon footprint
 - Type of data that has to be captured
 - Sources of data
 - How to report data

RECOMMENDATIONS

REDUCE CARBON FOOTPRINT



ENERGY EFFICIENCY AND RENEWABLE ENERGY

Energy efficiency assessments are a valuable exercise to obtain a detailed database of energy opportunities. The assessments investigate voltage and power, lighting, heating ventilation and air conditioning (HVAC) and IT equipment to ensure the building is efficient and is being billed the correct amount.

Another great energy reduction opportunity is renewable energy. Reunert Park already has a solar PV system installed. Further owned sites should be considered, especially, for facilities with highest electricity consumption.

RAW MATERIALS

Currently, all raw materials used across Reunert's businesses are virgin materials. Use of recycled raw materials could lead to emissions reductions and more efficient resource consumption. It is recommended that Reunert sets targets to increase raw recycled materials consumption, especially for its manufacturing sites.

IMPROVE DATA QUALITY



NON-FINANCIAL DATA REPORTING

Reunert has implemented One Stream's non-financial data system. It is recommended that improvements to the system (see section on Data Gap Analysis) are implemented.

ENERGY MONITORING AND MANAGEMENT

An automated energy monitoring and management system rolled out across the Reunert portfolio of businesses will enhance the accuracy of electricity data. In addition, monitoring consumption may highlight energy reduction opportunities and ensure your sites are being billed correctly by council.

SET TARGETS



tCO₂e PER SQUARE METRE, REVENUE, EMPLOYEE

Reunert already annually reports its emissions per revenue, employee and per square meter. Setting emissions reduction targets using these metrics is a representative way to monitor progress on performance over time and it allows benchmarking reduction efforts against those of competitors.

SCIENCE-BASED TARGETS

Companies aiming to achieve the highest scoring in CDP submissions should be considering setting science-based targets for their emissions management.

CONSIDER CARBON TAX IMPLICATIONS



CARBON TAX IMPLICATIONS

Carbon Tax legislation is scheduled to be implemented in 2019. The carbon tax rate will be R120 per tonne of CO₂e, with a number of tax free thresholds available.

Phase 1 of carbon tax accounts for Scope 1 (excl. liquid fuels) emissions only. However, it is possible that in the longer term, carbon tax liabilities could be extended to Scope 2 emissions as well, especially since they account for large share of emissions for many organisations.

Reunert may pay indirect carbon tax as organisations such as Eskom pass their tax liability on to the consumer.

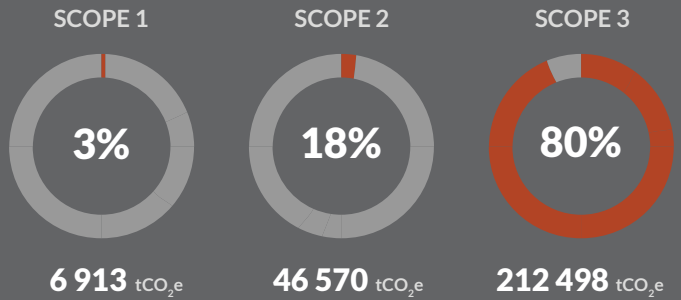
TAX CONCESIONS AND FURTHER LIABILITIES

Carbon tax may introduce additional tax allowances, which would be a subject to implementation of carbon offsets and emissions reduction initiatives.

CONCLUSION

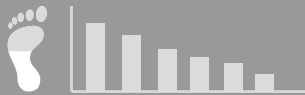
CARBON FOOTPRINT 2017-2018 FOLLOWING THE GREENHOUSE GAS PROTOCOL.

265 981 tCO₂e



ENERGY EFFICIENCY

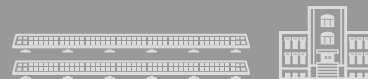
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Additional information may be provided upon the clients request.

DISCLAIMER

This report has been based on the information supplied to Terra Firma Solutions (Pty) Ltd (TFS) by the client. TFS has exercised all due care in reviewing the supplied information.

This applies to the site conditions and features as they existed at the time of TFS's investigations, and those reasonably foreseeable. This report does not necessarily apply to conditions and features that may arise after the date of this report, about which TFS had no prior knowledge nor had the opportunity to evaluate.

TFS does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them.

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A 5% threshold has been used to determine the concept of materiality.

This report is for the sole and exclusive benefit of the Client.

The carbon footprint assessment is based on data provided by the Client.