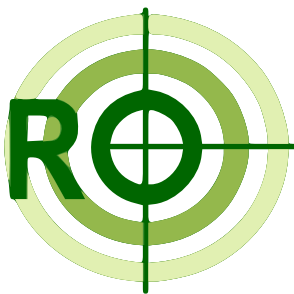

CARBON-ZERO



CARBON FOOTPRINT ASSESSMENT 2021

Prepared for: **Space Solutions**

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1. Executive Summary

This carbon footprint assessment has been carried out on behalf of Space Solutions and performs carbon emissions analysis on their five regional offices and the operations of their 'Transform' department. Also included as part of the Scope 3 analysis, is an assessment of their supply chain, considering the embodied carbon within spent raw materials as well as the shipping and logistical requirements of the organisation.

Emissions from the UK facilities have been determined using the UK government's BEIS emissions factor database. The results of this assessment have been documented in alignment with the UK GHG Protocol and reported as per scopes 1, 2 & 3. The greenhouse gases being measured in this report have been simplified to CO₂e (or CO₂ equivalent); CO₂e is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

The report concludes that in each functional unit, in this case defined as the ongoing service delivery for all business units over a 1-year period, between January 2021 to December 2021, the business emitted approximately 139 tonnes of carbon measured in T/CO₂e.

For future reporting purposes, this has been normalised to 0.004 T/CO₂e per per £1000 of turnover, using the principles of emissions intensity.

A breakdown of Space Solutions annual emissions per business location is highlighted in the table below.

Space Solutions 2021 Annual Emissions by Business Location		
	Annual Carbon Emissions (Tonnes CO ₂ e)	Percentage of total Emissions (%)
Aberdeen	43	30.8
Dundee	7	5.2
Edinburgh	4	3.0
Glasgow	9	6.2
Livingston	19	14.0
Transform	19	14.0
Supply Chain & Material Use	4	2.7
Staff Travel	34	24.2
Total Emissions	139	

Table 1- Space Solutions 2021 Annual Carbon Emissions by Business Location

2. Introduction

2.1 Aims and Objectives

- Provide a complete and thorough annual carbon footprint of Space Solutions business operations for the calendar year of 2021.
- Perform a full Carbon Footprint Assessment and report on each of the UK offices.
- Assess the associated GHG emissions in Manufacturing, Shipping and Logistics required within the Supply Chain.
- Assess the embodied carbon within the spent raw materials required to manufacture Space Solution's goods.
- Assess the associated GHG emissions for company travel and accommodation.
- Prepare a summary of the opportunities for improvement.

2.2 Scope

The scope of this assessment extends to the carbon emissions associated with the ongoing business operations of all the Space Solution owned or managed offices and workshops. The scope also extends to any and all freight requirements necessary to allow for the movement and provision of manufactured goods to client end locations, as well as any staff travel. This assessment covers the calendar year of 2021.

3. Introduction to GHG

In response to the increased awareness of global warming, countermeasures against greenhouse gas emissions were prepared by the United Nations Conference on Environment and Development (UNCED) at the Rio Earth Summit held in Brazil in 1992. Since then, international efforts have continued to reduce greenhouse gas emissions through the Kyoto Protocol in 1997 and the Copenhagen Accord in 2009. Most Recently, the Paris Climate Agreement was signed which aims to bring all nations into a common cause to undertake more ambitious efforts to combat climate change and adapt to its effects.

Many countries around the world have outlined action plans to reduce greenhouse gas emissions and are preparing policies that include their reduction goals. Among developed countries, examples of reduction goals by the year 2020 include 34% in the UK, 20% in the EU, 17% in the US and 15% in Japan.¹

Concern over climate change has stimulated interest in estimating the total amount of greenhouse gasses (GHG) produced during the different stages in the –life cycle of goods and services – i.e. their production, processing, transportation, sale, use and disposal. The outcome of these calculations is often referred to as –product carbon footprints (PCFs), where ‘carbon footprint’ is the total amount of GHGs produced for a given activity and ‘product’ is any goods or services that are marketed. PCFs are thus distinct from GHG assessments performed at the level of projects, corporations, supply chains, municipalities, nations or individuals.

Product carbon footprinting is currently dominated by private standards and by certification schemes operated by small for-profit and not-for-profit consultancy companies and in a few cases by large retailers and

¹ Woosik Jang, Hyun-Woo You (2015) Quantitative Decision-Making Model for Carbon Reduction in Road Construction Projects Using Green Technologies. Sustainability, 7 (1), pp.11240-11259

manufacturers. Government support to PCF schemes and standards has been limited so far. The exceptions are the PAS 2050 standard, the development of which was supported by the UK Department for Environment, Food and Rural Affairs (Defra); Japan's pilot Carbon Footprint Scheme, launched in April 2009; and the assistance provided by the French Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME) in the development of a scheme operated by the food retailer Casino.

At the international level, PCF standards are being developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD-WRI), through its Greenhouse Gas Protocol; and by the International Office for Standardisation.²

4. Assumptions

In order to calculate Space Solution's annual footprint, the following assumptions were adopted:

- All road freight was assumed to be carried out by BEIS deemed 'articulated HGVs > 33t'.
- Delivery emissions calculations have been made based on fully loaded vehicles and the emissions have been split depending on percentage load share. The delivery mileage has been adjusted to represent the percentage load for the calculations.
- All raw material used has been assumed to be virgin material unless otherwise stated.
- The embodied emissions associated with the materials used as part of the facility upgrades would belong to the end user, Space Solutions clients.
- Any emissions from the manufacturing of steel would belong to the client and therefore has not been included in this assessment.
- Materials are shipped directly to the client's site therefore the shipping emissions would also belong to their client and are not included in this assessment.
- Space solutions are responsible for materials used that are not part of the final build. This includes all protective equipment used during the construction process.
- Space Solutions are responsible for the emissions associated with the waste generated as part of their service delivery. This excludes waste generated from any ongoing facility management contracts.
- Business travel for all locations has been consolidated and reported as such.
- All staff air travel has used the emissions factor for 'average passenger'.
- Where data was not available for some locations, averages per employee were calculated for other locations with complete records and adjusted pro-rata to reflect the number of employees at that location.
- Based on values from the Aberdeen office it was calculated emissions from waste disposal were equivalent to 0.62 kg/CO₂e per employee.
- Based on values from the Aberdeen office it was calculated each employee consumed 4.5m³ of water per year.
- Office consumables have been grouped together by material type (paper, plastic, polythene, etc) and reported as such. Some material types, such as plastics, have been excluded from this report as the emissions associated with the weight used are negligible.

² Simon Bolwig, Peter Gibbon (2009) Counting Carbon in the Marketplace. Global Forum on Trade: Trade and Climate Change, OECD.

5. Space Solution Carbon Footprint Assessment

5.1 Aberdeen

The figure below contains an overview of the scope 1, 2 & 3 emissions associated with Space Solutions Aberdeen office.

Aberdeen Office- 2021 Carbon Emissions					
Results	Unit	Quantity	BEIS Emissions Factor	Description	Carbon Emissions (KgCO ₂ e)
Scope 1					
Gaseous Fuels	kWh	62,066	0.184	Nat Gas	11,368
Liquid Fuels	Litres	1,265	2.51233	Diesel: Company Vehicles	3,178
Liquid Fuels	Litres	160	2.51233	Diesel: Generator	402
Total Scope 1 Emissions					14,948
Scope 2					
Electricity	kWh	112,309	0.212	UK Electricity	23,847
Total Scope 2 Emissions					23,847
Scope 3					
Waste Treatment	Tonnes	1.96	21.294	Office Residual	42
Waste Treatment	Tonnes	0.73	21.294	Office DMR	16
Waste Treatment	Tonnes	340.54	0.989	Demolition	337
Waste Treatment	Tonnes	116.97	21.294	Plasterboard	2,491
Waste Treatment	Tonnes	1.74	0.989	Metal	2
Waste Treatment	Tonnes	0.46	21.294	WEEE	10
Waste Treatment	Tonnes	1.12	21.294	Wood	24
Waste Treatment	Tonnes	27.61	21.294	Glass	588
Waste Treatment	Tonnes	7.8	21.294	Residual	166
Waste Treatment	Tonnes	0.11	21.294	Mixed Recycling	2
Water Supply	M ³	417	0.149	Water Supply	62
Water Treatment	M ³	396.15	0.272	Water Treatment	108
Total Scope 3 Emissions					3,846
TOTAL KGCO₂e EMISSIONS					42,641
TONNES CO₂e					42.6

Fig.1 Aberdeen Office Carbon Footprint Analysis

- Mains electricity consumption is the primary source of GHG emissions in Space Solutions Aberdeen office. It accounted for 56% of the total emissions.

5.2 Dundee

The figure below contains an overview of the scope 1, 2 & 3 emissions associated with Space Solutions Dundee office.

Dundee Office- 2021 Carbon Emissions					
Results	Unit	Quantity	BEIS Emissions Factor	Description	Carbon Emissions (KgCO ₂ e)
Scope 1					
Liquid Fuels	Litres	1,130	2.51233	Deisel: Company Vehicles	2,838
Total Scope 1 Emissions					2,838
Scope 2					
Electricity	kWh	20,631	0.212	UK Electricity	4,381
Total Scope 2 Emissions					4,381
Scope 3					
Waste Treatment	Tonnes	0.38	21.294	Office Waste	8
Water Supply	M ³	58.9	0.149	UK Water Supply	9
Water Treatment	M ³	58.9	0.272	UK Water Treatment	16
Total Scope 3 Emissions					33
TOTAL KGCO₂e EMISSIONS					7,252
TONNES CO₂e					7.3

Fig.2 Dundee Office Carbon Footprint Analysis

- Mains electricity consumption was the main source of GHG emissions at Space Solutions Dundee office. It accounted for 60% of the total emissions.

5.3 Edinburgh

The figure below contains an overview of the scope 1, 2 & 3 emissions associated with Space Solutions Edinburgh office.

Edinburgh Office- 2020 Carbon Emissions					
Results	Unit	Quantity	BEIS Emissions Factor	Description	Carbon Emissions (KgCO _{2e})
Scope 1					
Total Scope 1 Emissions					
Scope 2					
Electricity	kWh	19,083	0.212	UK Electricity	4,052
Total Scope 2 Emissions					4,052
Scope 3					
Waste Treatment	Tonnes	0.41	21.3	Office Waste	9
Water Supply	M ³	63.5	0.149	Water Supply	9
Water Treatment	M ³	63.5	0.272	Water Treatment	17
Total Scope 3 Emissions					35
TOTAL KGCO_{2e} EMISSIONS					4,087
TONNES CO_{2e}					4.1

Fig.3 Edinburgh Office Carbon Footprint Analysis

Electricity usage data was not available for the Edinburgh office. Emissions from mains electricity consumption were estimated based on a kWh per employee value calculated from the Glasgow office usage. This was calculated to be 1,363 kWh per employee per year.

This usage per employee value was upscaled for the 14 staff at the Edinburgh office and the total usage is estimated to be 19,083 kWh. The emissions from this consumption would equate to 99% of Edinburgh's total emissions.

5.4 Glasgow

The figure below contains an overview of the scope 1, 2 & 3 emissions associated with Space Solutions Glasgow office.

Glasgow Office- 2020 Carbon Emissions					
Results	Unit	Quantity	BEIS Emissions Factor	Description	Carbon Emissions (KgCO _{2e})
Scope 1					
Liquid Fuels	Litres	273	2.51233	Diesel: Company Vehicles	685
Total Scope 1 Emissions					685
Scope 2					
Electricity	kWh	36,803	0.212	UK Electricity	7,814
Total Scope 2 Emissions					7,814
Scope 3					
Waste Treatment	Tonnes	0.79	21.3	Office Waste	17
Water Supply	M ³	122.4	0.149	Water Supply	18
Water Treatment	M ³	122.4	0.272	Water Treatment	33
Total Scope 3 Emissions					68
TOTAL KGCO_{2e} EMISSIONS					8,568
TONNES CO_{2e}					8.6

Fig.4 Glasgow Office Carbon Footprint Analysis

- Mains electricity consumption was the primary source of GHG emissions in Space Solutions Glasgow office. It accounted for 91% of the total emissions.

5.5 Livingston

The figure below contains an overview of the scope 1, 2 & 3 emissions associated with Space Solutions Livingston office.

Livingston Office- 2020 Carbon Emissions					
Results	Unit	Quantity	BEIS Emissions Factor	Description	Carbon Emissions (KgCO ₂ e)
Scope 1					
Gaseous Fuels	kWh	49,332	0.184	Nat Gas	9,036
Liquid Fuels	Litres	738.6	2.51233	Diesel: Company Vehicles	1,856
Total Scope 1 Emissions					10,892
Scope 2					
Electricity	kWh	37,772	0.212	UK Electricity	8,020
Total Scope 2 Emissions					8,020
Scope 3					
Waste Treatment	Tonnes	0.58	21.3	Office Waste	12
Waste Treatment	Tonnes	145.58	0.99	Demolition Waste	144
Waste Treatment	Tonnes	12.12	21.3	Wood	258
Water Supply	M ³	105	0.149	Water Supply	16
Water Treatment	M ³	99.75	0.272	Water Treatment	27
Total Scope 3 Emissions					457
TOTAL KGCO₂e EMISSIONS					19,369
TONNES CO₂e					19.4

Fig.5 Livingston Office Carbon Footprint Analysis

- Natural gas consumption was the primary source of GHG emissions in Space Solutions Livingston office. It accounted for 47% of the total emissions.

5.6 Transform Division

The emissions related to Space Solutions Transform division's operations have been calculated separately from the regional offices and included in this section. The figure below contains an overview of the scope 1, 2 & 3 emissions associated with Space Solutions Transform division.

Transform- Annual Carbon Emissions Estimation					
Results	Unit	Quantity	BEIS Emissions Factor	Description	Carbon Emissions (KgCO ₂ e)
Scope 1					
Liquid Fuels	Litres	4,111	2.51233	Diesel: Company Vehicles	10,328
Total Scope 1 Emissions					10,328
Scope 2					
Electricity	kWh	8,627	0.212	UK Electricity: Unit 4	1,832
Electricity	kWh	33,418	0.212	UK Electricity: Unit 5	7,096
Total Scope 2 Emissions					8,927
Scope 3					
Waste Treatment	Tonnes	32.74	0.989	Demolition	32
Waste Treatment	Tonnes	1.1	21.294	Plasterboard	23
Waste Treatment	Tonnes	1.06	21.294	WEE	23
Waste Treatment	Tonnes	0.08	21.294	Residual	2
Waste Treatment	Tonnes	0.06	21.294	DMR	1
Water Supply	M ³	73	0.149	Water Supply	11
Water Treatment	M ³	69.35	0.272	Water Treatment	19
Total Scope 3 Emissions					111
TOTAL KGCO₂e EMISSIONS					19,367
TONNES CO₂e					19.4

Fig.6 Transform Carbon Footprint Analysis

- Fuel consumption from company vehicles was the primary source of GHG emissions in Space Solution's Transform division. It accounted for 53% of the total emissions.

5.7 Supply Chain & Embodied Emissions

Most materials purchased by Space Solutions are done so on behalf of their clients and are billed directly to them as part of the installations or upgrades. Therefore, the supply chain and embodied emissions associated with these materials would be assigned to the end user, Space Solutions client. Only materials used by Space Solutions that are not part of the final build are included in their supply chain and material use emissions.

The table below contains an overview of Space Solution's supply chain for 2021. All shipments were made by road, and it has been assumed these were completed by a Heavy Goods Vehicle (HGV >33t). Materials would have been sent as part of larger shipments therefore the total mileage of the journey has been adjusted to reflect the percentage share of the load required by the Space Solution products.

Supply Chain- 2021 Carbon Emissions					
Destination	Distance (Miles)	Weight (kg)	Adjusted Mileage	Emissions Factor	Carbon Emissions (KgCO _{2e})
Aberdeen	428	306	4.0	1.72659	7
Edinburgh	298	82	0.7	1.72659	1
Glasgow	294	435	3.9	1.72659	7
Livingston	290	120	1.1	1.72659	2
TOTAL EMISSIONS KGCO_{2e}					17

Table 2. Emissions from Supply Chain

Space Solutions were unable to determine the amount of recycled material used by their suppliers in the manufacturing process. For conservatism this was assumed to be virgin primary material. The table below highlights the emissions associated with the extraction of the raw material used.

Raw Materials- 2021 Carbon Emissions				
Item	Primary Material Type	Weight Consumed (kg)	Emissions per kg (KgCO _{2e})	Carbon Emissions (KgCO _{2e})
Sheets M208	Polypropylene	675	2.541	1,716
Tape	Polythene	113	2.13	241
T Board SPM 60	Polypropylene	75.6	2.541	192
Floor Film Rolls	Polyethylene	78.39	2.13	167
Pallet Wrap Rolls	Polyethylene	0.0552	2.13	0
Paper	Paper	1,506	0.919	1,382
Ink Cartridges	Ink	1.89	3.26	6
Batteries	Batteries	1.78	4.63	8
TOTAL EMISSIONS KGCO_{2e}				3,712

Table 3 Emissions from Raw Materials

- Space Solutions use of M208 sheets was the primary source of emissions within the raw materials used. They accounted for 46% of the total embodied emissions.

The emissions factors above incorporate the energy used for the forming of plastics therefore there are no further emissions associated with the manufacturing process.

All manufacturing emissions associated with the production of steel would belong to Space Solutions clients and therefore are out with the scope of this assessment.

5.8 Staff Travel

It was not possible to assign all staff travel to individual offices therefore it has been consolidated into a singular business element for the purpose of this report. The table below contains a breakdown of staff travel emissions by transport type.

Staff Travel- 2021 Carbon Emissions			
Transport Type	Distance (Km)	Emissions Factor	Carbon Emissions (KgCO _{2e})
Car	119,161*	0.27108	32,302
Ferry	32.2	0.12952	4
Flights- Domestic	2594.3	0.24587	638
Light Rail	35.4	0.02813	1
Train	13,833.9	0.03549	491
TOTAL KGCO_{2e} EMISSIONS			33,526
TONNES CO_{2e}			35.5

Table 4. Emissions from Staff travel

*Miles

In addition to the travel above, there were 7 nights of accommodation associated with staff travel, all in the UK. Hotel accommodation in the UK has an emissions factor of 13.9 kg/CO_{2e} per overnight stay. The total emissions associated with Space Solutions use of hotels is 97 kg/CO_{2e}.

The total carbon emissions associated with staff travel and accommodation for 2021 is 35.5 tonnes CO_{2e}.

Business practices in 2021 were likely still impacted by the effects of Covid-19 therefore these emissions may increase in future years.

6. Emissions Summary

The table and figure below summarise Space Solutions carbon emissions for each business location's operations. Space Solutions annual carbon footprint was calculated to be 138.5 Tonnes CO_{2e}.

Space Solutions 2021 Annual Emissions by Business Location		
	Annual Carbon Emissions (Tonnes CO _{2e})	Percentage of total Emissions (%)
Aberdeen	43	30.8
Dundee	7	5.2
Edinburgh	4	3.0
Glasgow	9	6.2
Livingston	19	14.0
Transform	19	14.0
Supply Chain & Material Use	4	2.7
Staff Travel	34	24.2
Total Emissions	139	

Table 5- Space Solutions 2021 Annual Carbon Emissions by Business Location

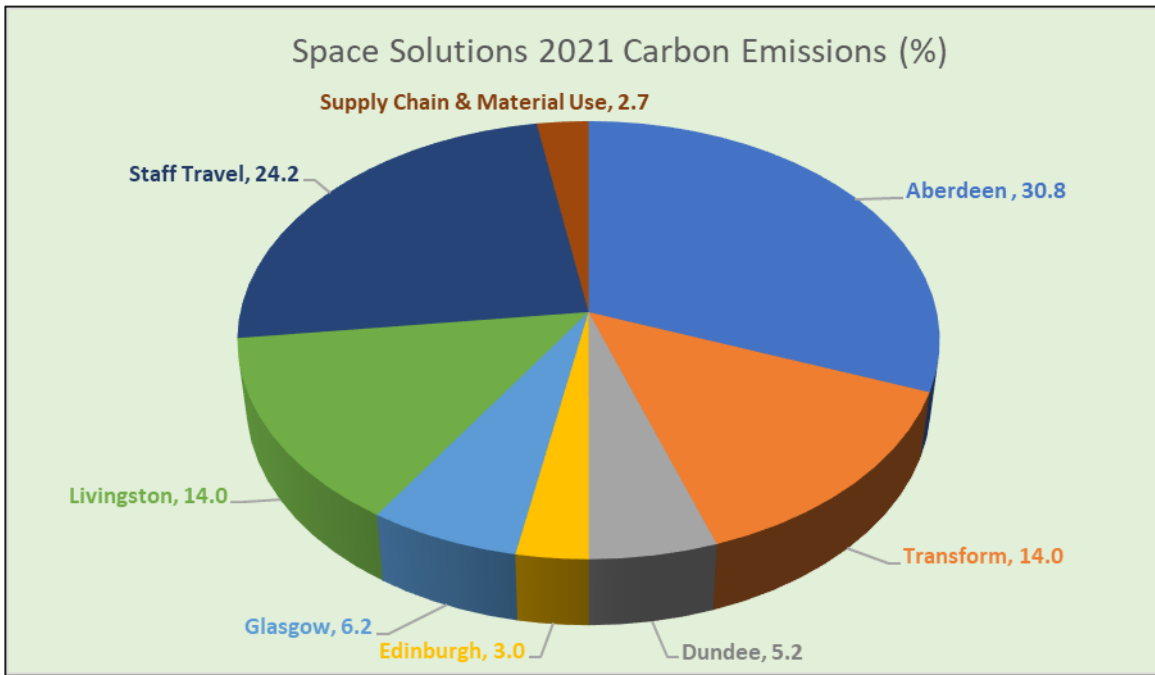


Fig.7 Space Solutions Carbon Emissions by Business Location

It should be noted that business operations for Space Solutions in 2021 could have been impacted by Covid-19 and therefore some emissions may differ to future forecasts. The impacts of Covid-19 could have affected travel and office energy consumption, depending on potential office/site closures and working from home arrangements.

Covid-19 also had the potential to indirectly affect Space Solutions emissions if it impacted the uptake in office refurbishments. A decrease in demand for office fitting in 2021 would show an artificially low emissions baseline for Space Solutions, with a reduction in materials purchased or visits to client sites. To track emissions consistently in future years a metric of T/CO₂e per £1000 of turnover has been applied. For 2021 Space Solutions emitted 0.004T CO₂e per £1000 of turnover.

Figure 3 below contains a summary of the scope 1, 2 & 3 emissions for 2021.

2021 Space Solutions Annual Carbon Emissions by Scope					
Results	Measure	Quantity	BEIS Emissions Factor	Description	Carbon Emissions (KgCO _{2e})
Scope 1					
Fuels	kWh	111,398	0.183	Natural Gas	20,404
Fuels	litres	7,517	2.512	Company Vehicles	18,885
Fuels	Litres	160	2.512	Generator	402
Total Scope 1 Emissions					39,691
Scope 2					
Electricity: UK	kWh	268,643	0.21233	UK Electricity	57,042
Total Scope 2 Emissions					57,042
Scope 3					
Business travel- air	passenger.km	2,594	0.246	Domestic	638
Business travel- land	Miles	119,161	0.271	Grey Fleet	32,302
Business travel- land	Km	35	0.208	Light Rail	1
Business travel- land	Km	13,834	0.035	Train	491
Business travel- Sea	passenger.km	32	0.13	Ferry	4
Freighting goods	Miles	10.8	1.073	HGV	19
Hotel stay	Room per night	7	13.9	Hotel: UK	97
Material use	tonnes	0.75	2,541	Polypropylene	1,907
Material use	tonnes	0.19	2,130	Polyethylene	408
Material use	tonnes	1.5	919	Paper	1,385
Material use	tonnes	0.002	4,633	Batteries	8
Material use	tonnes	0.002	3,260	Ink Cartridges	6
Waste disposal	tonnes	12.9	21.294	Commercial Waste	275
Waste disposal	tonnes	519	0.99	Demolition	513
Waste disposal	tonnes	118	21.294	Plasterboard	2,514
Waste disposal	tonnes	1.7	0.99	Metal	2
Waste disposal	tonnes	28	8.9	Glass	588
Waste disposal	tonnes	13	21.294	Wood	282
Waste disposal	tonnes	1.52	21.294	WEEE	33
Water supply	cubic metres	840	0.149		125
Water Treatment	cubic metres	810	0.272		220
Total Scope 3 Emissions					41,818
TOTAL EMISSIONS	KGCO_{2e}				138,551
	TONNES CO_{2e}				139

Figure 8. Space Solutions 2021 Emissions by Scope

7. Areas for Improvement

During the Carbon footprint assessment, the following aspects of Space Solutions operations were identified as areas of potential improvement.

7.1 Staff Travel

It was calculated that staff travel and accommodation accounted for approximately one quarter of Space Solution's total carbon footprint in 2021. While this is already a high percentage, it is possible the impacts of Covid-19 will have reduced the 'normal' travel emissions due to restricted travel, especially at the start of the year.

7.2 Consumption of Electricity

Switching electricity suppliers to one providing renewable electricity would reduce Space Solution's annual carbon footprint. By obtaining electricity from a guarantee of Origin (GoO) certified, zero emissions provider, Space Solutions will be able to remove their entire annual kWh usage for electricity provision from their carbon footprint. Based on the 2021 figures that would remove 57 tonnes/CO₂e when compared to a non-GoO certified provider. This would likely require landlord permission at rented premises.

8. Contact Details

Carbon-Zero UK (A division of Data Engineering Projects Limited)

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Website: www.carbon-zero.uk

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Appendix A – Online Calculator

GHG Protocol Scopes 1,2 & 3 Emissions Summary 2021- Aberdeen

Scope	Classification	Category	Sub-Category	Units	UOM	Quantity	kg Co2e	Te Co2e	Notes
							kgCo2e	TeCo2e	
Scope 1							14,948	14.9	
	Fuels	Gaseous fuels	Natural Gas	Energy - Gross CV	kWh	62,066	11,368	11.4	
		Liquid Fuels	Diesel	Diesel Litres	Litres	1,265	3,179	3.2	Company Cars
		Liquid Fuels	Diesel	Diesel Litres	Litres	160	402	0.4	Generator
Scope 2							23,847	23.8	
	UK electricity	Electricity generated	Electricity: UK	Electricity: UK	kWh	112,309	23,847	23.8	
Scope 3							3,846	3.8	
	Waste disposal	Refuse	Commercial and industrial waste	Closed-loop	tonnes	0.7	16	0.02	Office Recycling
			Commercial and industrial waste	Combustion	tonnes	2.0	42	0.04	Office Residual
			Commercial and industrial waste	Closed-loop	tonnes	0.1	2	0.00	Project- Recycling
			Commercial and industrial waste	Combustion	tonnes	7.8	166	0.17	Project Residual
		Construction	Average Construction	Closed-loop	tonnes	340.5	337	0.34	Demolition
			Plasterboard	Closed-loop	tonnes	117	2,491	2.49	Plasterboard
			Metal	Closed-loop	tonnes	1.7	2	0.00	Metal
			Wood	Closed-loop	tonnes	1.1	24	0.02	Wood
		Electrical	WEE	Closed-loop	tonnes	0.5	10	0.01	WEEE
		Other	Glass	Closed-loop	tonnes	27.6	588	0.59	Glass
	Water supply	Water supply	Water supply	Water supply	cubic metres	417	62	0.1	
	Water Treatment	Water Treatment	Water Treatment	Water Treatment	cubic metres	396.15	108	0.1	
Total Emissions							42,641	42.6	

GHG Protocol Scopes 1,2 & 3 Emissions Summary 2021- Dundee

							kg Co2e	Te Co2e	Notes
Scope	Classification	Category	Sub-Category	Units	UOM	Quantity	kgCo2e	TeCo2e	
Scope 1							2,838	2.8	
	Fuels	Liquid Fuels	Diesel	Diesel Litres	Litres	1,129.7	2,838	2.8	Company Vehicles
Scope 2							4,381	4.38	
	UK electricity	Electricity generated	Electricity: UK	Electricity: UK	kWh	20,631	4,381	4.38	
Scope 3							33	0.03	
	Waste disposal	Refuse	Commercial and industrial waste	Closed-loop	tonnes	0.38	8	0.01	
	Water supply	Water supply	Water supply	Water supply	cubic metres	58.9	9	0.01	
	Water Treatment	Water Treatment	Water Treatment	Water Treatment	cubic metres	58.9	16	0.02	
Total Emissions							7,252	7.3	

GHG Protocol Scopes 1,2 & 3 Emissions Summary 2021- Edinburgh

							kg Co2e	Te Co2e	Notes
Scope	Classification	Category	Sub-Category	Units	UOM	Quantity	kgCo2e	TeCo2e	
Scope 1							0	0.0	
Scope 2							4,052	4.1	
	UK electricity	Electricity generated	Electricity: UK	Electricity: UK	kWh	19,083	4,052	4.1	
Scope 3							35	0.04	
	Waste disposal	Refuse	Commercial and industrial waste	Closed-loop	tonnes	0.41	9	0.01	
	Water supply	Water supply	Water supply	Water supply	cubic metres	63.5	9	0.01	
	Water Treatment	Water Treatment	Water Treatment	Water Treatment	cubic metres	63.5	17	0.02	
Total Emissions							4,087	4.1	

GHG Protocol Scopes 1,2 & 3 Emissions Summary 2021- Glasgow

Scope	Classification	Category	Sub-Category	Units	UOM	Quantity	kg Co2e	Te Co2e	Notes
							kgCo2e	TeCo2e	
Scope 1							685	0.7	
	Fuels	Liquid Fuels	Diesel	Diesel Litres	Litres	272.63	685	0.7	Company Vehicles
Scope 2							7,814	7.81	
	UK electricity	Electricity generated	Electricity: UK	Electricity: UK	kWh	36,803	7,814	7.81	
Scope 3							68	0.07	
	Waste disposal	Refuse	Commercial and industrial waste	Closed-loop	tonnes	0.79	17	0.02	
	Water supply	Water supply	Water supply	Water supply	cubic metres	122.4	18	0.02	
	Water Treatment	Water Treatment	Water Treatment	Water Treatment	cubic metres	122.4	33	0.03	
Total Emissions							8,568	8.6	

GHG Protocol Scopes 1,2 & 3 Emissions Summary 2021- Livingston

Scope	Classification	Category	Sub-Category	Units	UOM	Quantity	kg Co2e	Te Co2e	Notes
							kgCo2e	TeCo2e	
Scope 1							10,892	10.9	
	Fuels	Gaseous fuels	Natural Gas	Energy - Gross CV	kWh	49,332	9,036	9.0	
		Liquid Fuels	Diesel	Diesel Litres	Litres	738.6	1,856	1.9	Company Cars
Scope 2							8,020	8.0	
	UK electricity	Electricity generated	Electricity: UK	Electricity: UK	kWh	37,772	8,020	8.0	
Scope 3							457	0.46	
	Waste disposal	Refuse	Commercial and industrial waste	Closed-loop	tonnes	0.58	12	0.01	
		Construction	Average Construction	Closed-loop	tonnes	146	144	0.14	
			Wood	Closed-loop	tonnes	12	258	0.26	
	Water supply	Water supply	Water supply	Water supply cubic metres	cubic metres	105	16	0.0	
	Water Treatment	Water Treatment	Water Treatment	Water Treatment cubic metres	cubic metres	99.75	27	0.0	
Total Emissions							19,369	19.4	



GHG Protocol Scopes 1,2 & 3 Emissions Summary 2021- Transform

							kg Co2e	Te Co2e	Notes
Scope	Classification	Category	Sub-Category	Units	UOM	Quantity	kgCo2e	TeCo2e	
Scope 1							10,328	10.3	
	Fuels	Liquid Fuels	Diesel	Diesel Litres	Litres	4,111	10,328	10.3	Company Vehicles
Scope 2							8,927	8.9	
	UK electricity	Electricity generated	Electricity: UK	Electricity: UK	kWh	8,627	1,832	1.8	Unit 4
	UK electricity	Electricity generated	Electricity: UK	Electricity: UK	kWh	33,418	7,096	7.1	Unit 5
Scope 3							111	0.1	
	Waste disposal	Refuse	Commercial and industrial waste	Closed-loop	tonnes	0.14	3	0.00	
		Construction	Average Construction	Closed-loop	tonnes	32.7	32	0.03	
			Plasterboard	Closed-loop	tonnes	1.1	23	0.02	
		Electrical	WEEE- mixed	Combustion	Tonnes	1.1	23	0.02	
	Water supply	Water supply	Water supply	Water supply cubic metres	cubic metres	73	11	0.0	
	Water Treatment	Water Treatment	Water Treatment	Water Treatment cubic metres	cubic metres	69.35	19	0.0	
Total Emissions							19,367	19.4	

GHG Protocol Scopes 1,2 & 3 Emissions Summary 2021- Supply Chian & Material Use

							kg Co2e	Te Co2e	Notes
Scope	Classification	Category	Sub-Category	Units	UOM	Quantity	kgCo2e	TeCo2e	
Scope 1							0	0.0	
Scope 2							0	0.0	
Scope 3							3,712	3.7	
	Freighting goods	HGV (all diesel)	Articulated (>33t)	Average laden	Miles	10.8	19	0.02	
	Material use	Plastic	PP	Primary material production	tonnes	0.751	1,908	1.91	
		Plastic	LDPE	Primary material production	tonnes	0.191	408	0.41	
		Paper		Primary material production	tonnes	1.5	1,382	1.38	
		Ink Cartridges		Primary material production	tonnes	0.00189	6	0.00	
		Batteries		Primary material production	tonnes	0.00178	8	0.00	
Total Emissions							3,712	3.7	

GHG Protocol Scopes 1,2 & 3 Emissions Summary 2021- Staff Travel

							kg Co2e	Te Co2e	Notes
Scope	Classification	Category	Sub-Category	Units	UOM	Quantity	kgCo2e	TeCo2e	
Scope 1							0	0.0	
Scope 2							0	0.0	
Scope 3							33,533	33.5	
	Business travel- air	Flights	Domestic to and from UK	Average passenger with RF	passenger km	2,594	638	0.64	
	Business travel- land	Cars (by size)	Average car	Diesel	miles	119,161	32,302	32.30	
		Rail	Light Rail	passenger km	passenger km	35	1	0.00	
		Rail	National Rail	passenger km	passenger km	13,834	491	0.49	
	Business travel- Sea	Ferry	Car Passenger	Car Passenger	passenger km	32	4	0.00	
	Hotel stay	Hotel stay	UK	Room per night	Room per night	7	97	0.10	
Total Emissions							33,533	33.5	

