

STW

Scott Tallon Walker
ARCHITECTS

Carbon Reduction Plan Report - 2023



March 2024

3	Introduction
4	System Boundary
5	2023 Carbon Footprint results
6	2023 Carbon Footprint analysis
7	Carbon emissions reduction progress
10	Further reduction strategy

Introduction

Scott Tallon Walker

Scott Tallon Walker Architects is a architectural company creating timeless, innovative, and well-crafted buildings that enhance the well-being, the public realm, and the environment.

The four studios have an outstanding track record of designing award-winning buildings and interiors across all construction sectors.



Dublin: 55 no. employees
Cork: 16 no. employees
London: 5 no. employees
Galway: 2 no. employees

Corporate Carbon Footprint

Corporate Carbon Footprint (CCF) is the sum of the CO₂ emissions released by the company within the defined system boundaries over a specific period.

In this report, Scott Tallon Walker's individual calculations for office branches in Cork, Dublin, Galway and London are grouped as Scott Tallon Walker Architects, for 2023.

Analyzing the carbon footprint helps identify areas where emissions can be reduced the most, establish specific goals, and devise appropriate reduction strategies. It also allows for monitoring progress toward those targets.

Calculation approach

This calculation followed the guidelines outlined in the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol).



GHG Protocol encompasses all greenhouse gas emissions within the specified system boundaries.

They are recorded objectively, and any assumptions, data gaps, extrapolations, or exclusions are transparently presented in this report.

Our goal is to ensure the report's accuracy, minimise uncertainties, and maintain consistency in methodology to facilitate comparison of the company's emissions over time.



CO₂ emissions were calculated using the company's energy consumption data (from bills), information on transport and purchases collected during 2023, emission factors provided by DEFRA at <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023>.



Accounting for emissions involves considering all relevant greenhouse gases identified in the IPCC Assessment Report, including carbon dioxide (CO₂), methane (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).

For simplicity, in this report, we refer to all CO₂e as just CO₂.

Each gas has varying abilities to contribute to atmospheric warming and remains in the atmosphere for different durations. To facilitate comparison of their impacts, they are converted to the common unit of CO₂e (carbon dioxide equivalent).

For simplicity, in this report, we refer to all CO₂e as just CO₂.



Emissions related to electricity were calculated using market-based and location-based methods, as recommended by the GHG Protocol. The market-based method was employed for the Irish offices, utilising emission factors specified on the electricity bills. For the London office, the average national grid mix of the country was utilised from the DEFRA database.

Introduction

System boundaries

Following the GHG Protocol, the emission sources have been divided into three scopes.



Scope 1 emissions are generated by the offices directly. In 2023 it included Dublin office's gas consumption for heating.



Scope 2 emissions are generated by electricity purchased by all four offices.

Scopes 1 and 2 emissions are calculated individually for each branch based on billed energy consumption.

Scope 3 emissions are the below listed sources, which are outside of direct corporate control:



employee commuting



business travel



purchased goods and services



upstream emissions from scopes 1 and 2 (fuel and energy)



home office

Scope 3 emissions from employee commuting are calculated separately for each office, reflecting the local impact.

Data for other Scope 3 emissions, such as business travel and purchases is consolidated. This is because the majority of these transactions are managed through our Dublin office, making it a central point for emissions management.

Carbon Footprint 2023 Result tables

Below is a table showing the breakdown of all carbon emissions calculation for all Scott Tallon Walker Architects' business activities in 2023.

Scope 1	kg CO ₂	%
Direct emissions from company facilities (self-generated heat from gas)	32,499.00	21.80
Dublin office	32,499.00	21.80
Scope 2		
Electricity purchased for own use	22,302.00	14.96
Dublin office	8,426.00	5.65
Cork office	11,248.00	7.55
London office	1,460.00	0.98
Galway office	1,168.00	0.78
Scope 3		
Employee commuting	40,740.84	27.33
Dublin office	30,877.76	20.72
Cork office	6,926.56	4.65
London office	836.09	0.56
Galway office	2,100.43	1.41
Business travel	26,500.15	17.78
Flights	17,091.10	11.47
Private vehicles (car mileage)	7,228.00	4.85
Taxi	212.50	0.14
Trains/ busses	959.96	0.64
Hotel nights	1,008.90	0.68
Purchased goods and services	12,650.00	8.49
Electronic devices	7,516.11	5.04
Office paper	1,029.02	0.69
Water	179.92	0.12
Waste	3,924.96	2.63
Upstream fuel and energy	8,724.29	5.85
Upstream fuel and energy related emissions for all 4no. offices	8,724.29	5.85
Home office	5,632.65	3.78
Home office for all offices	5,632.65	3.78
Total carbon emissions	149,048.93	100

2023 Carbon Footprint Analysis

Overall result for 2023

The overall result of the carbon emissions calculation for all Scott Tallon Walker Architects' business activities in 2023 is:

149,048.93 kgCO₂ = 149.0 tCO₂

Largest emission sources

The largest sources of emissions are identified to highlight the areas to be prioritised for emissions reduction.

The below graphs illustrate the breakdown of STW's emissions by scope.

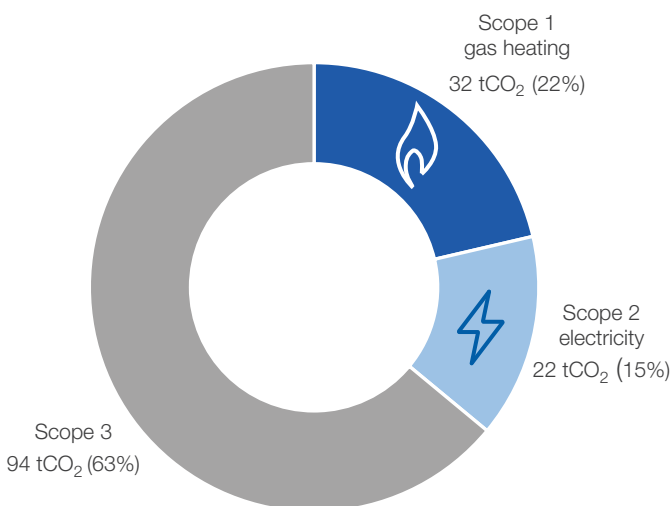


Figure 1 - Breakdown of total STW's emissions by scope.

As depicted in Figure 1, Scope 3 is the largest source of STW's total emissions.

Figure 2 provides a detailed breakdown of Scope 3 emission sources. It shows that 46% of these emissions originate from employee commuting, with business travel being the second largest contributor (26%).

Figure 3 compares all three scopes, including the Scope 3 subsections, showing that employee commuting accounts for the most significant portion of STW's emissions. It is followed by the emissions from the Dublin office heating, while the emissions relating to business travel are the third largest source.

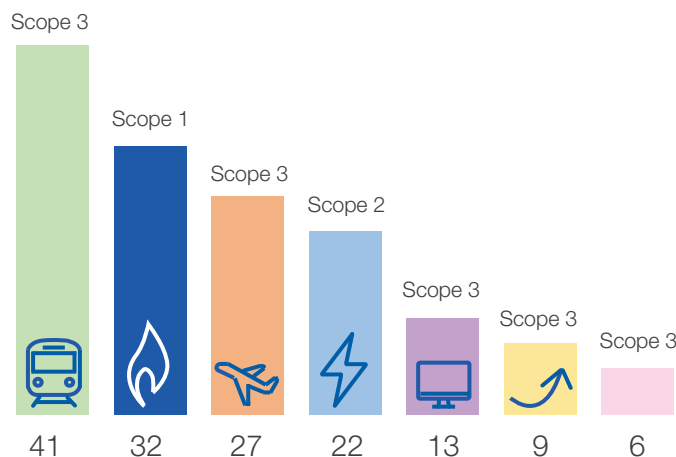


Figure 3 - Comparison of all emission sources.

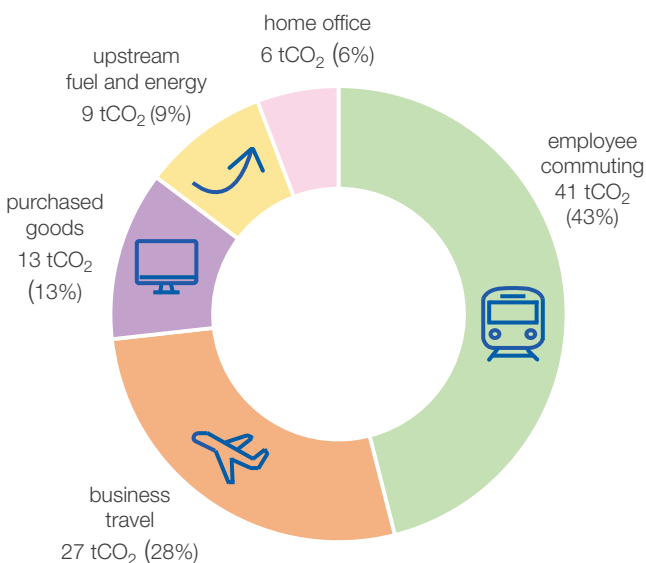


Figure 2 - Scope 3 emissions breakdown.

Emissions per capita

The total emissions in 2023 per capita is:



Carbon emissions reduction progress so far

In 2023, STW's overall carbon emissions were 149,048.93 kgCO₂ (149 tCO₂), showing a reduction of 32,523.28 kgCO₂ (17.9%) compared with a year before. Scopes 1 and 2 decreased by 20.3% and 48.1%, respectively, while Scope 3 achieved a slight reduction of 3.7%.

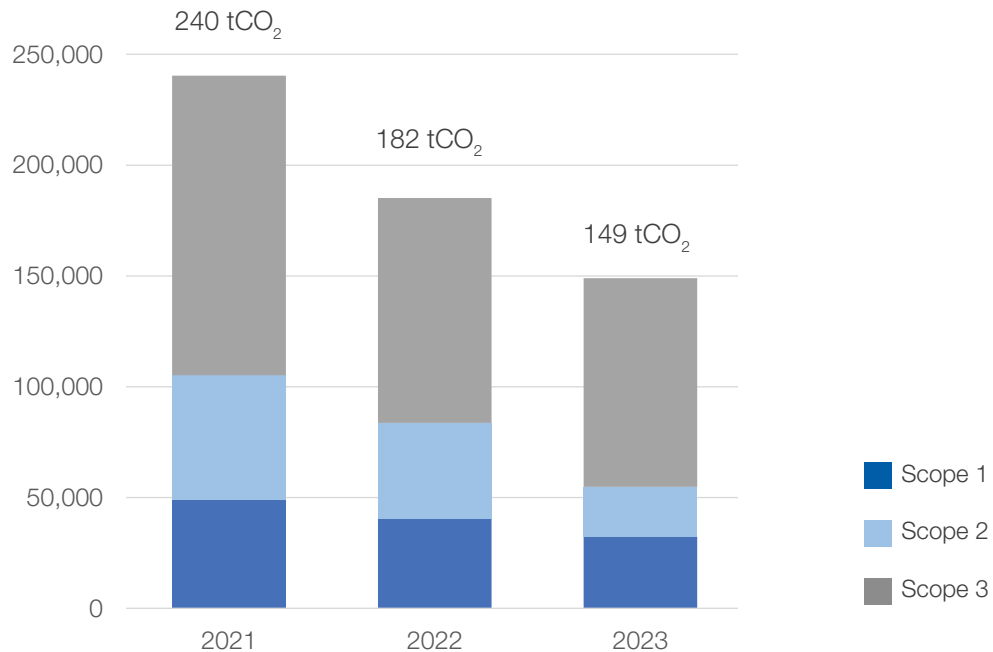


Figure 4 - Comparison of STW's carbon emissions by scope between 2021, 2022 and 2023

Scope 1 - comparison between 2022 and 2023



In 2022 and 2023, STW's Scope 1 carbon emissions were created by the self-generated heat produced from gas in the Dublin and London offices. London office was moved to a new location, which doesn't use gas for heating, at the end of 2022.

The 20% reduction in Scope 1 carbon emissions between 2022 and 2023 is associated with:

- decrease in the emission factor,
- the London office not using gas for heating in 2023,
- and a 5% reduction in energy use for the heating in the Dublin office.

The below tables show a comparison between the 2022 and 2023 Scope 1 emission sources and associated emission factors.

2022 Scope 1 - Self generated heat (gas)			
	energy use	emissions factor	emissions
	kWh	gCO ₂ /kWh	kgCO ₂
Dublin Office	186,006	202.9	37,741
Cork Office	n/a		0.00
Galway Office	n/a		0.00
London Office	16,163	188	3,039
total	202,169.00		40,779.26

Table 1 - Scope 1 emission sources in 2022

2023 Scope 1 - Self generated heat (gas)			
	energy use	emissions factor	emissions
	kWh	gCO ₂ /kWh	kgCO ₂
Dublin Office	176,625	184	32,499
Cork Office	n/a		0.00
Galway Office	n/a		0.00
London Office	n/a		0.00
total	176,625.00		32,499.00

Table 2 - Scope 1 emission sources in 2023

Carbon emissions reduction progress so far

Scope 2 - comparison between 2022 and 2023



Scope 2 encompasses emissions associated with the purchase of electricity. The overall carbon emissions from scope 2 across all four offices have dropped by 48%, from 43tCO₂ in 2022 to 23tCO₂ in 2023. Two components are responsible for this: the change in energy use and the carbon intensity of the grid electricity, expressed as emission factors.

The Dublin and London offices were the largest Scope 2 contributors in 2023, and the significant proportion of their CO₂ emissions reduction resulted in a large drop in the STW's overall Scope 2 emissions reduction.

Dublin office

Electrical energy use was reduced by 7.8%, and the emissions factor decreased by 41.9%, resulting in an overall emissions reduction of 51.8%.

Cork office

Electrical energy use and the emission factor increased by 28.9% and 10.7%, respectively, resulting in a 42.6% hike in the overall emissions.

Galway office

Increased its electrical energy use by 43.5%, but the emissions factor was reduced by 41.9%, resulting in an overall reduction of 16.6%.

London office

Due to the change of location, the energy use was reduced by 82.7%, which, along with the emissions factor reduction of 45.4%, brought an overall emissions reduction of 90.6%.

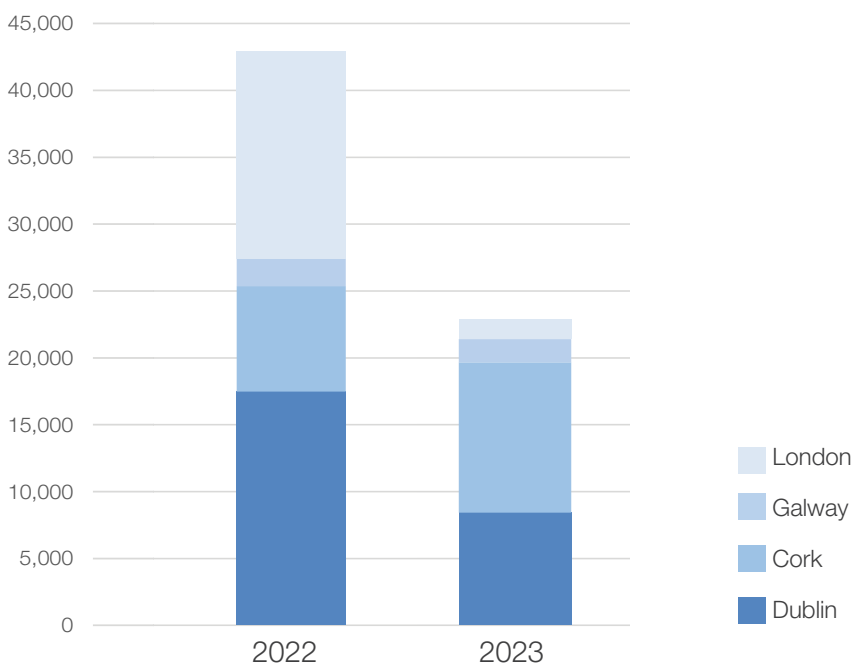


Figure 5 - Comparison of scope 2 emissions in all 4no. offices between 2022 and 2023

2022 Scope 2 - Electricity			
	energy use	emissions factor	emissions
	kWh	gCO2/kWh	kgCO2
Dublin Office	87,916	179	17,483
Cork Office	24,047	328	7,887
Galway Office	11,557	179	2,069
London Office	40,942	379	15,505
total	164,462.00		42,944.12

Table 3 - Scope 2 emission sources in 2022

2023 Scope 2 - Electricity			
	energy use	emissions factor	emissions
	kWh	gCO2/kWh	kgCO2
Dublin Office	81,024	104	8,426
Cork Office	30,986	363	11,248
Galway Office	16,587	104	1,725
London Office	7,052	207	1,460
total	135,649.41		22,859.79

Table 4 - Scope 2 emission sources in 2023

Carbon emissions reduction progress so far

Scope 3 - commuting between 2022 and 2023



Between 2022 and 2023, the overall emissions associated with employee commuting decreased by 10.9% due to several factors:

- reduction in employees from 84no. in 2022 to 78no. in 2023,
- more employees increased their use of less carbon-intensive travel modes (biking, walking, or public transport) over the more carbon-intensive ones (like driving) than the other way around,
- and a decrease in the emission factors for all modes of transport.

The two tables below compare the overall average reduction of emissions per person per year for all four offices. Additionally, it is apparent that all the offices achieved a reduction. This detailed comparison underscores the positive outcome of our collective efforts.

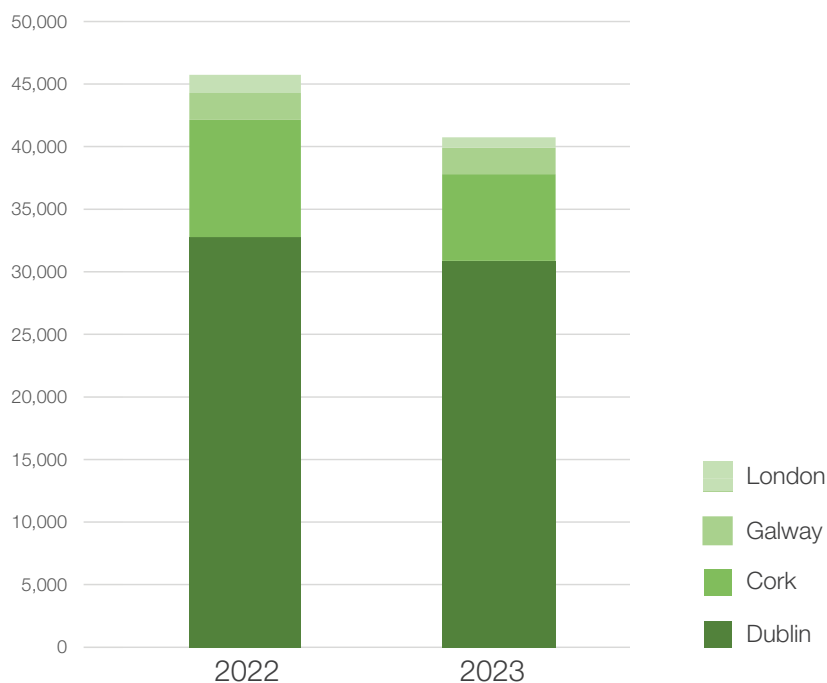


Figure 5 - Comparison of employee commuting emissions in all 4no. offices between 2022 and 2023

2022 Scope 3 - Employee commuting			
	emissions/ year	no. of employees	emissions/ person/year
	kgCO2		kgCO2
Dublin Office	32,767	57	574.86
Cork Office	9,380.60	18	521.14
Galway Office	2132.460	2	1,066.23
London Office	1463.370	7	209.05
total	45,743.39	84	544.56

Table 5 - Scope 3 - employee commuting in 2022

2023 Scope 3 - Employee commuting			
	emissions/ year	no. of employees	emissions/ person/year
	kgCO2		kgCO2
Dublin Office	30,878	55	561.41
Cork Office	6,927	16	432.91
Galway Office	2,100	2	1,050.21
London Office	836	5	167.22
total	40,740.84	78	522.32

Table 6 - Scope 3 - employee commuting in 2023

Carbon emissions reduction progress so far

Scope 3 - business travel betw. 2022 and 2023



STW's overall emissions associated with business travel have risen in 2023 compared to 2022.

This increased number of business trips can be associated with the return to regular business practices following the recovery from Covid-19.

The most significant contributor is air travel, which increased by over 30%.

Car usage in 2023 increased almost tri-fold compared to the 2022 levels.

Train or bus travel and hotel nights are the two areas where carbon emissions were lower in 2023 than in 2022, with a 48% and 32% decrease, respectively.

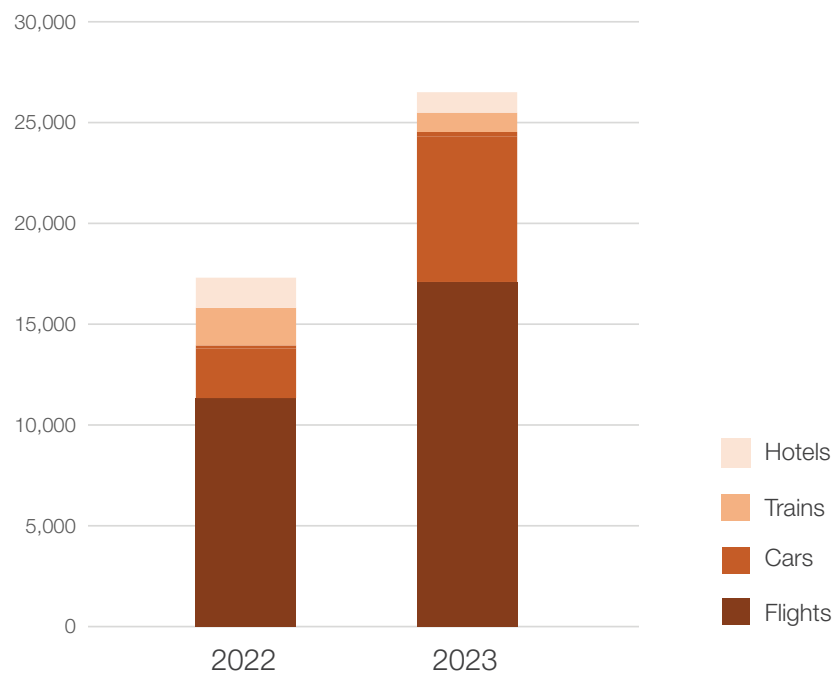


Figure 6 - Comparison of business travel emissions broken down by category between 2022 and 2023

2022 Scope 3 - Business Travel			
	kilometers/ number of nights	avg emission factor	emissions/ year
	unit	kgCO ₂ / unit	kgCO ₂
Flights [km/person]	49,260	0.2300	11,329.90
Car mileage [km]	8,914	0.2764	2,463.83
Taxis [km]	561	0.2764	155.06
Trains/ Buses [km /person]	17,194	0.1080	1,856.90
Hotel [nights/ person]	85	17.6776	1,502.60
total	76,013.95	0.2277	17,308.29

Table 7 - Scope 3 - business travel in 2022

2023 Scope 3 - Business Travel			
	kilometers/ number of nights	avg emission factor	emissions/ year
	units	kgCO ₂ / unit	kgCO ₂
Flights [km/person]	75,109	0.2276	17,091.13
Car mileage [km]	26,549	0.2722	7,227.66
Taxis [km]	781	0.2722	212.51
Trains/ Buses [km /person]	27,069	0.0355	959.96
Hotel [nights/ person]	86	11.7314	1,008.90
total	129,593.88	0.2045	26,500.15

Table 8 - Scope 3 - business travel in 2023

Carbon emissions reduction progress so far

Scope 3 - goods between 2022 and 2023



STW's overall emissions associated with purchased goods dropped in 2023 compared to 2022. Fewer electronic devices with a smaller average carbon footprint were used, resulting in a 41% decrease and less paper was bought, leading to a 4% reduction.

Water use (calculated based on the office area) remained the same, but emissions from waste (calculated based on the number of employees) decreased due to the smaller number of employees in 2023.

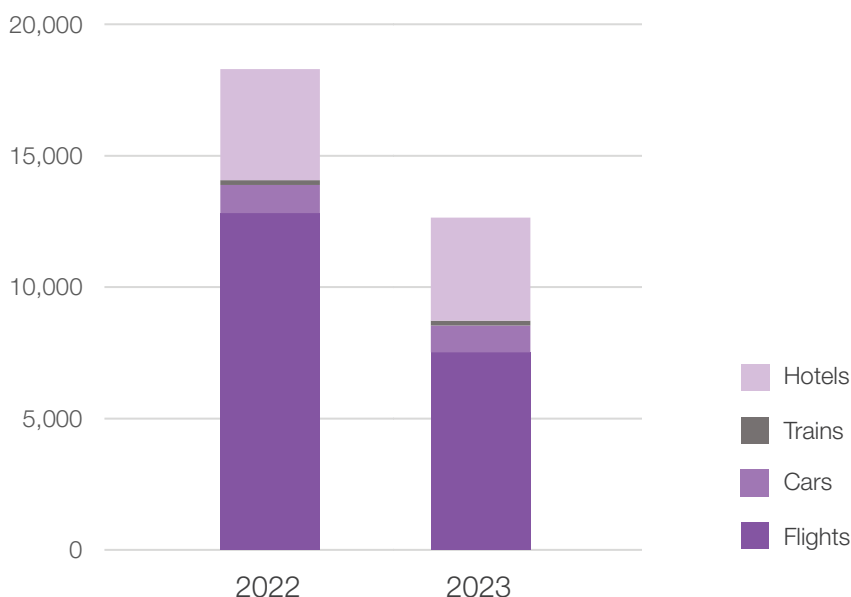


Figure 6 - Comparison of business travel emissions broken down by category between 2022 and 2023

2022 Scope 3 - Purchased goods			
	no. of units	avg emission factor	emissions/ year
		kgCO ₂ / unit	kgCO ₂
Electronic devices [pieces]	44	291.1868	12,812.22
Office paper [tonnes]	1.18	910.4781	1,075.16
Water [m ³]	1,533	0.1173	179.92
Waste [kg]	6,216	0.6800	4,226.88
total	7,794.60		18,294.18

Table 9 - Scope 3 - purchased goods in 2022

2023 Scope 3 - Purchased goods			
	no. of units	avg emission factor	emissions/ year
		kgCO ₂ / unit	kgCO ₂
Electronic devices [pieces]	29	259.1762	7,516.11
Office paper [tonnes]	1.13	910.4781	1,029.02
Water [m ³]	1,533	0.1173	179.92
Waste [kg]	5,772	0.6800	3,924.96
total	7,335.55		12,650.00

Table 10 - Scope 3 - purchased goods in 2023

Upstream fuel and energy

The Scope 3 upstream fuel and energy result is directly related to the Scope 1 and 2 energy use. In 2023, these carbon emissions were reduced by 21%.

Home office

Carbon emissions created by home office work increased slightly from 5,520 kgCO₂ to 5,633 kgCO₂ in 2023 despite a decrease in the number of employees. This offsets part of the decrease in employee commuting.

Further carbon emissions reduction strategy

The first step to reducing emissions is to understand where they come from. In 2021 Scott Tallon Walker commenced the annual Corporate Carbon Footprint reporting, which tracks the carbon emissions related to the office's energy use and transportation.

Figure 5 below showcases our significant progress in reducing carbon emissions in Scopes 1, 2 and 3. It also highlights the scale of further reductions needed in the coming years.

The dashed line represents a 50% reduction on the baseline 2021 emissions. The Irish Climate Action Plan calls on this level of reduction to be achieved by 2030. If STW managed to achieve similar reduction in 2024 as in the previous year (2023), it would be possible to achieve it by the end of 2024.

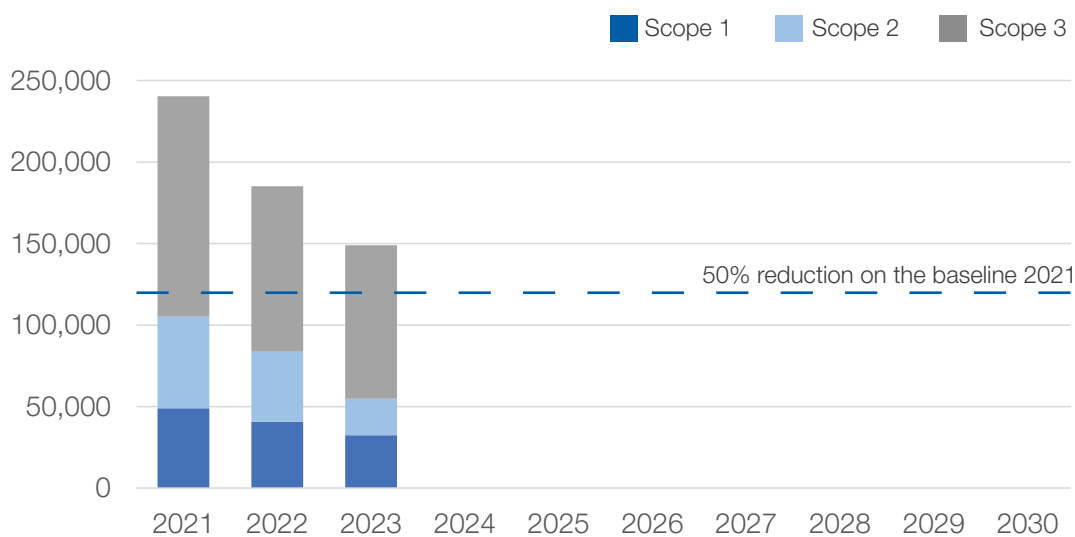


Figure 5 - STW's carbon emission reductions so far and further reductions needed

Scopes 1 and 2

STW will continue to implement the measures already undertaken, to further reduce the offices' energy consumption and associated carbon emissions:

- better management of the office computers (switching off the PCs when not in use),
- continue to upgrade to more efficient lighting and equipment (when replacement is required),
- identify areas where waste can be further reduced by using digital documents instead of paper, recycling waste materials, and composting food waste,
- implement heating and air quality controls and monitoring
- consider procuring energy from an energy provider with a higher percentage of renewable energy in their mix (especially in the Cork office)

office buildings, to identify energy improvement measures that could be implemented, especially those enabling moving away from the fossil fuel heating system. However, the protected status of the STW's Georgian headquarters will mean a limited array of possibilities.

In the longer perspective, STW is dedicated to undertaking energy efficiency assessments of their

Further carbon emissions reduction strategy

Scope 3

Employee commuting (43%) and business travel (28%) are the primary contributors to Scope's 3 emissions. Therefore, STW should initially concentrate its efforts on implementing reductions within these two areas.



Employee Commuting

Active transport modes, like walking and cycling, with a zero carbon factor, are the most beneficial options to limit emissions from employee commuting. The second best choice is public transport, of which trains and trams are preferable over buses. The most carbon-intensive mode is single-occupancy car transport.

Breakdown in 2023

In 2023, carbon emissions from STW's employee commuting amounted to 40,741 kgCO₂, and the average carbon footprint of employee commute was 522 kgCO₂/y. The breakdown of travel modes and associated emissions is as follows:

- 32% of employees were predominantly walking or cycling to the office, causing zero emissions,
- 42% of employees using public transport contributed to 35% of emissions (432 kgCO₂ per employee in this group on average)
- 26% of employees using car or motorbicycle contributed to 65% of emissions (1,324 kgCO₂ per employee in this group on average)

The most effective strategy for reducing carbon emissions in this area is to decrease the use of single-occupancy cars.

Switching from car to public transport

A 10-km commute by car, five days a week (emitting 1,258 kgCO₂) could be replaced:

- by bus (emitting 547 kgCO₂)
- by train or tram (emitting 164 kgCO₂)

Working from home.

A 10-km car commute five days a week (emitting 1,258 kgCO₂) could be replaced by:

- 3 days of car commute (755 kgCO₂)
- 2 days of WFH (462 kgCO₂)

resulting in 986 kgCO₂ of emissions (reduction of 272 kgCO₂.)

For 20km, the change would be from 2,515 kgCO₂ to 1,741 kgCO₂ (reduction of 774 kgCO₂).

Reducing travel days for long distances by car helps, but the emissions remain considerably high.

To reduce the overall annual emissions associated with employee commuting by 10% next year, STW would need to reduce the emissions by ca. 4,000 kgCO₂, comparing to 2023. This could be achieved by:

- encouraging car-driving employees to carpool,
- increase public transport use,
- working more days from home,
- switching to cycling or walking, or a combination of active and public transport travel.

Employee commuting emissions from different transport modes							
	five days a week						
	walking/ cycling kgCO ₂	train/ tram kgCO ₂	bus kgCO ₂	car (2 people carpooling) kgCO ₂	car (single occupancy) kgCO ₂	motorbike kgCO ₂	WFH kgCO ₂
5 km commute	0	81.9	273.4	314.45	628.9	305.1	578.3
10 km commute	0	163.8	546.8	628.9	1257.8	610.2	578.3
20 km commute	0	327.6	1093.6	1257.8	2515.6	1220.4	578.3
40 km commute	0	655.2	2187.2	2515.6	5031.2	2440.8	578.3

Table 11 - Employee commuting options comparison

Further reduction strategy



Business Travel

In 2023, carbon emissions from STW's business travel amounted to 26,500 kgCO₂ (340 kgCO₂ / employee).

Flights

In 2023 carbon emissions for business travel by plane amounted to 17,091 kgCO₂ for 41,257 km travelled.

Examples below show CO₂ emissions per a one-way trip from Dublin to the following cities:

Abuja, Nigeria:	1,128.9 kgCO ₂
Helsinki	451.6 kgCO ₂
Munich:	308.1 kgCO ₂
Copenhagen:	277.2 kgCO ₂
Amsterdam:	167.5 kgCO ₂
London:	100.0 kgCO ₂
Liverpool:	50.7 kgCO ₂

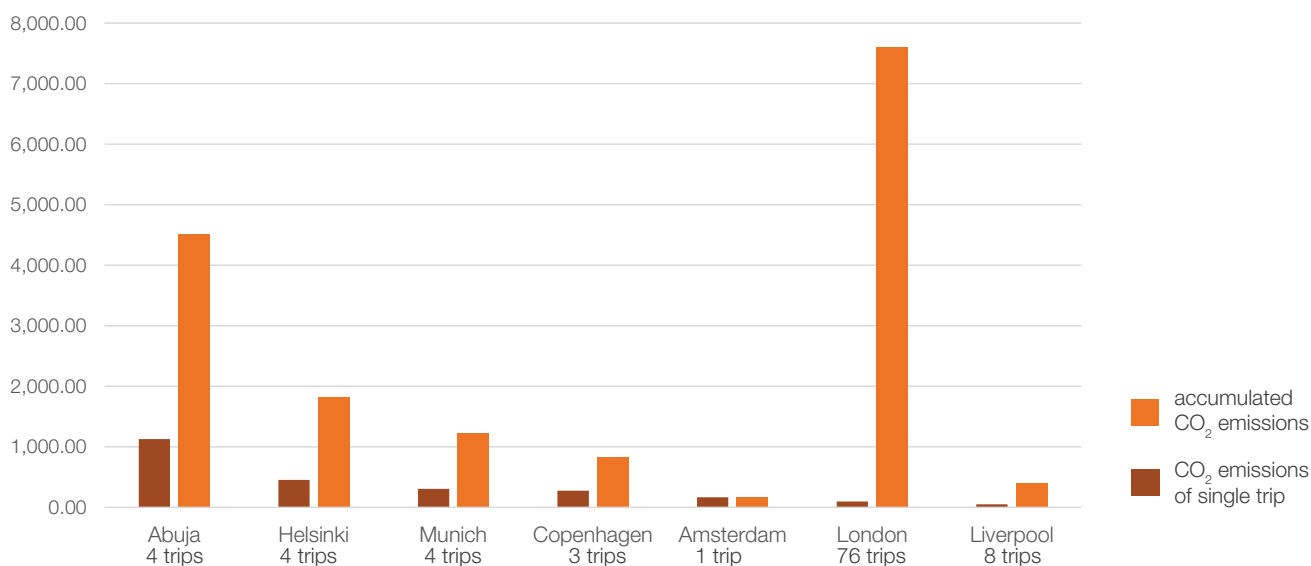


Figure 6 - the impact of accumulation of the relatively low-embodied carbon trips to London.

Car trips

In 2023, the carbon emissions for business travel by car amounted to 7,228 kgCO₂ for 26,549 km travelled. Car travel is the least efficient when it comes to business travel.

Car trips

In 2023, the carbon emissions for business travel by train amounted to 960 kgCO₂ for 27,069 km travelled. This included trips to the following cities (CO₂ emissions are per a one-way trip):

Dublin-Cork:	9.4 kgCO ₂
Dublin-Galway:	7.3 kgCO ₂
Dublin-Limerick:	6.2 kgCO ₂

Train travel is by far the most efficient means of business travel. In comparison, a 100km train journey incurs 3.5 kgCO₂ while the same distance travelled by car causes 27.2 kgCO₂ (nearly eight times larger emissions).

Options to reduce carbon emissions associated with business travel include limiting the number of flights in lieu of online meetings and using trains instead of single-occupancy cars.

Initiatives for Scope 3 carbon reduction

In 2024 STW Architects will develop and adopt a Sustainable Travel Policy, to provide employees with better insight into the carbon footprint related to commuting and business travel.



Scott Tallon Walker Architects

www.stwarchitects.com

Dublin
19 Merrion Square, Dublin 2,
D02 VR80, Ireland
Tel: +353 (1) 669 3000
Email: mail@stwarchitects.com

London
Belle House, 1 Hudson's Place,
Victoria, London SW1V 1JT, UK
Tel: +44 (207) 589 4949
Email: london@stwarchitects.com

Cork
72 South Mall, Cork,
T12 VX9A, Ireland
Tel: +353 (21) 432 0744
Email: cork@stwarchitects.com

Galway
Odeon House, 7 Eyre Square,
Galway, H91 PX9K, Ireland
Tel: +353 (91) 56 4881
Email: galway@stwarchitects.com