

Financial Year **2017-2018**

# Environmental Management Report

February 2019



**BDP.**

# Foreword



*Sustainability monitoring is growing to become far more than just assessing environmental impact. We are beginning to explore the impact our operation has on much wider reaching issues, and how our project work can remain at the forefront of minimising impact and maximising value. We have started to develop a number of tools and processes to build our monitoring into more than just the environment, to understand how low carbon design and resource efficiency, for example, start to enhance our vision of building places for people, including future generations.*

*Our commitment to minimising our environmental impact remains and we will, over the next few months, begin the process of setting new operational targets and objectives to continue to push performance and behaviours in the right direction. As climate change is elevated to an unprecedented level of importance, we know the built environment has to respond. As the UK's second largest employer of architects, we cannot shirk our responsibility in contributing positively to this need.*

*This year, through ongoing interventions and improved awareness campaigns across our studios, we have reduced carbon emissions per capita by nearly 34%, but we know we have more to do – particularly in engaging with the users of our studios to ensure our objectives are understood and fulfilled.*

*Through communicating our performance publicly, we aim to maintain openness and transparency in the hope that we will positively influence others to consider how they work and behave, and that it reflects our commitment to continual improvement.*

A handwritten signature in black ink, appearing to read 'Philip Gray'.

**Philip Gray**  
Head of Sustainability

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BDP's headline  
environmental targets  
2013-2018

BDP's headline 2017-2018  
performance against these  
targets are as follows:



Carbon emissions  
not to exceed  
1,000kgCO<sub>2</sub>e/capita,  
with a commitment  
to ongoing reduction  
across all of our UK  
and Ireland studios

Carbon emissions of  
666kgCO<sub>2</sub>e/capita  
comprising 47%  
reduction in scope  
1&2 CO<sub>2</sub> emissions  
per capita, against our  
2013 baseline



Seek to implement  
practical measures  
in our studios to  
encourage and  
incentivise travel  
decisions

Successfully  
embedded a travel  
plan to promote  
sustainable travel  
decisions across the  
practice



5% reduction of total  
water consumption  
per capita from 2013  
baseline

11% decrease in  
water consumption  
per capita against the  
2013 baseline

Throughout this report all figures are shown to two decimal places. All percentage changes have been calculated based on the full figures within the background data (not rounded). As such there may be slight discrepancies between percentages shown and those which can be calculated from the figures tabulated in the report.

# Headline Performance Figures FY 2017-2018

Throughout our 2017-2018 Environmental Management Report we compare environmental performance against our 2013 baseline figures in addition to the previous reporting year (2016). This enables us to measure progress and areas for improvement against valuable benchmarks.




## Total energy consumption (kWh)

2013	2,682,322	
2016	2,420,289	
2017-2018	2,317,119	




## Total emissions (kgCO<sub>2</sub>e)

2013	939,941	
2016	811,676	
2017-2018	581,622	

## Total emissions per capita (kgCO<sub>2</sub>e/person)

2013	1,256	
2016	958	
2017-2018	666	




## Total business travel emissions (kgCO<sub>2</sub>e)

2013	1,268,089	
2016	631,030	
2017-2018	712,367	




## Business travel emissions per capita (kgCO<sub>2</sub>e/person)

2013	1,912	
2016	775	
2017-2018	769	

## Total water use (m<sup>3</sup>)

2013	6,023.00	
2016	6,562.00	
2017-2018	6,257.11	

## Water usage per capita (m<sup>3</sup>/person)

2013	8.05	
2016	7.74	
2017-2018	7.16	



# Introduction

In our fifth year of public reporting, we continue to record and evaluate performance trends and report on progress against our overarching targets.

This report provides a comprehensive review and analysis of our environmental performance across all of our UK and Ireland studios during 2017-2018, in line with our own environmental ambitions and ISO 14001 and 50001 certification commitments. It reports on progress against targets and aspirations established in our previous Annual Environmental Report (2016).

In 2017-2018 we have maintained both ISO 14001 and 50001 certification, and updated our environmental management system in our transition to ISO14001:2015.

This Annual Environmental Statement covers the new BDP and NK Group financial year, from July 2017 to June 2018 (inclusive). All previous annual statements referenced covered their corresponding January to December periods. This is demonstrated in the table below.

Interim Report		Interim Report	Interim Report		Interim Report	
Annual Statement			Annual Statement		Annual Statement	
01/16	07/16	01/17	07/17	01/18	07/18	01/19

## Studio environmental headlines 2017-2018

Summarised below are some of the initiatives undertaken in our UK studios throughout 2017-2018 that have contributed to our improved environmental performance:

- Flow restrictions and water efficient urinals were installed in our Bristol studio, reducing water consumption.
- Our Manchester, Dublin and Glasgow studios have installed LED lighting, lowering electricity consumption.
- The replacement of the main boilers in Glasgow and London with high efficiency models has led to a reduction in gas consumption.
- Optimisation of the Building Management System (BMS) in the Manchester studio has enabled leaks to be detected quickly, reducing water consumption.
- Our Sheffield studio has moved into a new BREEAM Excellent premises connected to the Veolia local District Heat Network serving over 140 buildings.
- Our London studio canteen has introduced a charge for takeaway cups, and monthly meat free Mondays.

# About BDP

**BDP is a major international, interdisciplinary practice of architects, designers, engineers and urbanists. We work closely with users, clients and the community to create special places for living, working, shopping, culture and learning across the world.**

Founded in 1961, we now have studios across the UK, Ireland, Netherlands, the MENA region, India, China and Singapore. BDP has a leading track record in all major sectors including health, education, workplace, retail, urbanism, heritage, housing, transport, leisure, public safety and energy utilities.

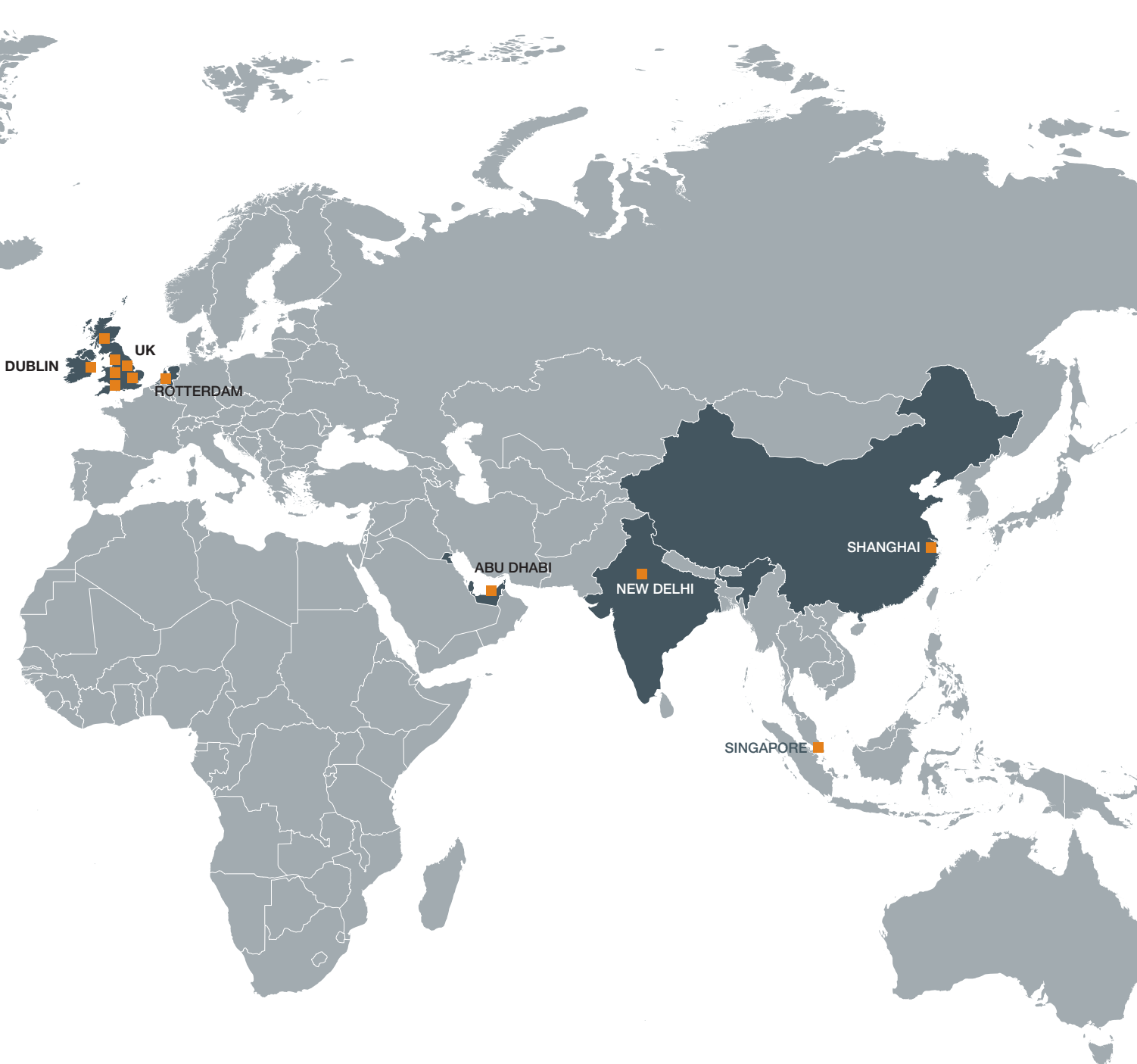
In 2016, BDP combined forces with Japan's leading engineering practice Nippon Koei to form an integrated design group of international reach. Sharing a philosophy which places an emphasis on design integration and community impact, the new group offers a unique combination of deep technical skills in engineering, architecture and the full range of design disciplines.

While the complementary geographical footprints and technical skills of the two practices mean they will be able to work collaboratively to deliver integrated design solutions across international markets, both companies have retained their existing operations and their own brand identity. This Environmental Management Report relates solely to the operations of BDP.

BDP is in a fortunate position where the decisions our designers and consultants make can influence the way people behave and the impact they have on the environment. As such, we have been working hard over the last five decades to deliver truly sustainable buildings and places that have improved and continue to improve quality of life, promote aspiration and drive prosperity.

We possess the technical, planning and design expertise to not only deliver resource efficient developments but also human, vibrant places in which people want to live, work and play. This expertise is connected and shared to create successful developments that enhance quality of life now, without jeopardising our collective journey to a truly sustainable future.

We believe we have a duty to promote good environmental and sustainable design with our clients and in our projects and to ensure excellent environmental performance within our business operations too.







# Our Studios

**The interdisciplinary practice of BDP evolved in 1961 from one founded in Preston in the north west of England in 1936. Since then it has grown, giving a good geographical spread around the UK and Ireland - in addition to those further afield. While there is no longer a studio in Preston, our studios in the UK and Ireland are listed below.**

All of our studios range in size and vary in style – some in historic surroundings, others in the very latest BDP-designed buildings. The number of staff employed by BDP has increased year on year since 2013 with an average number of staff in FY 2017-2018 of close to 900.

## **Birmingham**

Birmingham studio is located at 158 Edmund Street, a high profile newly refurbished building situated within the Colmore Row conservation area in the centre of the city. The premises are billed as 'highly sustainable', with intelligent lighting throughout and solar PV on the roof. The studio accommodates a team of over 20.

## **Bristol**

Bristol studio, built in 1964, is situated close to College Green, in the heart of this historic city. It has a gross area of 563m<sup>2</sup> and an average staff number of 60.

## **Dublin**

Dublin studio is situated in the Old Stone Building at Blackhall Green, just off Prussia Street. This area was previously known as the gateway to Dublin City. The building has three floors and an overall gross area of 792m<sup>2</sup>. BDP now occupies all three floors. The Dublin studio has an average of 50 staff.

## **Glasgow**

Glasgow studio has developed an enviable reputation as a leading practice in Scotland and is situated in the heart of the city's main shopping area, Buchanan Street. The studio accommodates around 70 staff and has a floor area of 1216m<sup>2</sup>.

## **London**

London studio is situated in a converted brewery in Clerkenwell. The vast reception space hosts a multitude of social and educational events both for BDP and external companies. This is the largest of our UK and Ireland studios, with a gross floor area of over 4,000m<sup>2</sup>. It currently accommodates an average of 420 staff.

## **Manchester**

The exemplary Manchester studio overlooks the Piccadilly Canal Basin, centrally located adjacent to Manchester's vibrant Northern Quarter. It has been recognised as one of the best new buildings in the city. Designed by BDP, the studio sets new standards for energy efficiency in the north west of England and has achieved a BREEAM Excellent rating – the first naturally ventilated building to receive this rating in Manchester. This is our second largest studio with a gross floor area of around 3,000m<sup>2</sup> and an average of 190 staff.

## **Sheffield**

Sheffield studio, accommodating approximately 55 staff, relocated to new premises in January 2018, now occupying the entire 759m<sup>2</sup> of the sixth floor at 3 St Paul's Place. The new BREEAM Excellent building is connected to a District Heating System.

# Staff Numbers



To account for fluctuation in staff numbers over time, and between studios of different sizes, we set and report against per capita targets. The tables outline our staff numbers for

2013 and 2017-2018 demonstrating the fluctuation and overall increase in staff numbers throughout our reporting years. Scope 1&2 emissions and water consumption per capita figures are

calculated based on the total staff associated with each studio. Business travel emissions account for BDP staff, with central staff reported separately.

Table 1. Staff numbers 2013

	2013 [Baseline]		
	Studio Staff	Central Staff	Total
Birmingham	12.1		12.1
Bristol	56.6	1.0	57.6
Dublin	21.5		21.5
Glasgow	62.4	1.9	64.3
London	265.2	12.6	362.7 <sup>*1</sup>
Manchester	144.4	31.6	176.0 <sup>*2</sup>
Sheffield	52.3	1.8	54.1
			<b>748.3</b>

Table 2. Staff numbers 2017-18

	2017-2018		
	Studio Staff	Central Staff	Total
Birmingham	23.3		23.3
Bristol	60.6		60.6
Dublin	49.4		49.4
Glasgow	68.6	3.0	71.6
London	407.9	13.9	421.8 <sup>*3</sup>
Manchester	157.1	33.2	190.2
Sheffield	54.8	2.0	56.8
			<b>873.8</b>

<sup>\*1</sup> In 2013, a portion of the London studio was tenanted by 85 occupants. This has been accounted for in our total.

<sup>\*2</sup> The 4th floor of our Manchester studio was tenanted in 2013, 2014 and 2015 (to end Dec 2015). The floor was let out again in September 2017. Our environmental reporting discounts the 4th floor occupation and energy/water consumption, which is separate and outside of BDP use.

<sup>\*3</sup> Not all of these staff are based in our studios with an increased number now site based.



# ISO 14001 and 50001

**All of our UK and Ireland studios have been certified under ISO 14001 since 2011. Key to maintaining the certification is continual improvement; demonstrating year on year progress in reducing the environmental impact of our operations. ISO 14001 also audits the processes and procedures we have in place for monitoring the environmental performance of our business activities and engaging staff in contributing to improving environmental performance.**

We were surveyed under ISO 14001:2004 by our LRQA auditors in November 2017 at our Manchester and Bristol studios, and April 2018 at our Glasgow and London studios, following rectification under ISO 14001:2015 in March.

BDP's energy management system for our studios remains in compliance with ISO 50001: 2011 and therefore the Energy Savings Opportunity Scheme, following recertification in July 2018.

The following opportunities for improvement were raised with regard to our environmental and energy management systems:

- Focus objectives to effectively monitor the most significant environmental aspects related to BDP business services,
- Update our Responsible Procurement Policy and procedures, and raise awareness of them throughout the organisation,
- Improve processes for the storing and maintenance of records and archived information.

We are working hard to integrate these through revisions to our processes. These areas will be reviewed during our next ISO 14001 audit in November and ISO 50001 audit in April 2019.

This annual statement demonstrates that BDP as an organisation take environmental management seriously. It serves as an important communication tool to engage our staff and stakeholders in a combined effort to continually reduce our environmental impact and enhance environmental credentials, as well as confidently justifying our position as an environmentally conscious design practice.



# Our Performance FY 2017-2018

The following section summarises our environmental performance during 2017-2018, our fifth year of formal annual environmental reporting. Our environmental performance targets are based on improvements against our 2013 baseline year.

Despite some improvements in metering data, there are still some studios for which the provision of accurate data is inhibited by lack of substantive metering/sub-metering. Greater granularity in data will enable more effective interventions, thereby achieving efficiency improvements and consequential utility cost savings. Sub-metering and the provision of accurate and available data is now a key consideration in agreeing new studio lease agreements.

## Energy Use and Carbon Emissions

Tables 3-4 provide a summary of our 2017-2018 energy consumption and carbon emissions against our 2013 baseline and the previous reporting year.

Table 3. Total scope emissions

	2013 (Baseline)	2017-2018	% change from baseline	% change from 2016
Scope 1 (kgCO <sub>2</sub> e)	179,492	137,882	-23.18	-7.93
Scope 2 (kgCO <sub>2</sub> e)	760,448	443,740	-41.65	-36.75
<b>Total (kgCO<sub>2</sub>)</b>	<b>939,941</b>	<b>581,622</b>	<b>-38.12</b>	<b>-31.68</b>
Scope 1 (kgCO <sub>2</sub> e)/ capita	240	158	-34.21	-10.71
Scope 2 (kgCO <sub>2</sub> e)/ capita	1,016	508	-50.03	-38.66
<b>Total (kgCO<sub>2</sub>)/ capita</b>	<b>1,256</b>	<b>666</b>	<b>-47.01</b>	<b>-33.74</b>

Table 4. Total energy consumption

	2013 (Baseline)	2017-2018	% change from baseline	% change from 2016
Scope 1 (kWh)	975,290.61	747,098.37	-23.40	-10.98
Scope 2 (kWh)	1,707,031.29	1,567,599.05	-8.17	-7.92
<b>Total kWh</b>	<b>2,682,321.90</b>	<b>2,314,697.42</b>	<b>-13.71</b>	<b>-8.01</b>
Scope 1 (kWh)/capita	1,303.34	855.02	-34.40	-10.98
Scope 2 (kWh)/capita	2,281.21	1794.05	-21.36	-10.70
<b>Total (kWh)/ capita</b>	<b>3,584.55</b>	<b>2,649.08</b>	<b>-26.10</b>	<b>-10.79</b>

## Energy Use and Carbon Emissions

Overall, both energy consumption and resulting scope 1 and 2 emissions have decreased against our 2013 baseline, with 2017-2018 seeing a 47% reduction in total emissions per capita. The target of 1,000 kgCO<sub>2</sub>e/capita has been achieved overall, falling to 666 kgCO<sub>2</sub>e/capita in 2017-2018. All studios show a reduction of at least 14% in CO<sub>2</sub> emissions per capita from 2013.

While total gas consumption per capita has decreased compared to the previous reporting year, improvements made at our Bristol, Glasgow, London and Sheffield studios have offset increases in gas consumption at our Birmingham, Dublin and Manchester studios. The studios have seen a corresponding total reduction in scope 1 emissions per capita of 11% relative to 2016. Individual studio analysis are provided later in this report.

The reduction in scope 1 and to a lesser extent scope 2 emissions is also partly attributed to the increase in staff numbers. While electricity consumption from small power items increases relatively to the number of staff, the demand on building systems per capita, including those for heating and lighting, has decreased as our studios are used closer to full capacity.

A significant reduction in scope 2 emissions per capita against performance in 2016 has also been made, with all studios seeing a decrease of at least 35%. A major factor in this has been the decarbonisation of grid electricity (as demonstrated in the Carbon Conversion Factors section of this report). Nonetheless, evidence of our improved performance is demonstrated through an overall reduction in electricity consumption of 8% relative to 2016.

## Studio Analysis

Individual studio performance has been analysed in the studio analysis section of this report. This includes measures implemented in each studio to improve environmental performance. A copy of the BDP studio environmental action plan, including planned interventions for continued improvement, can be found at the back of the report.

## Carbon Conversion Factors

We have calculated our carbon emissions throughout the report using carbon conversion factors provided by BEIS. BEIS revise the UK carbon conversion factors annually, reflecting changes to the UK's energy mix consumed in UK power stations, and proportion of gas, electricity and fuel imported from abroad. Carbon factors can vary considerably year on year due to the influence of the relative prices of coal and natural gas, as well as fluctuations in peak demand and renewables. Vehicle emissions factors are further influenced by advances in automotive fuel efficiency.

The table below displays the carbon conversion factors used to calculate our 2013 (baseline) emissions, and emissions in subsequent reporting years (2016 and 2017-2018).

Table 5. Defra Conversion factors (scope 1, 2 and travel)

	Units	2013	2016	2018
Scope 1 (natural gas)	kgCO <sub>2</sub> e/kWh	0.18404	0.18400	0.18396
Scope 2 (grid supplied electricity)	kgCO <sub>2</sub> e/kWh	0.44548	0.41205	0.28307
Car emissions (average car)	kgCO <sub>2</sub> e/km	0.19023	0.18307	0.17753
National rail	kgCO <sub>2</sub> e/km	0.04904	0.04885	0.04424
Domestic flight	kgCO <sub>2</sub> e/km	0.32662	0.27867	0.29832
Short-haul flight	kgCO <sub>2</sub> e/km	0.19246	0.16844	0.16236
Long-haul flight	kgCO <sub>2</sub> e/km	0.22653	0.19162	0.21256

Though we record, as far as our current systems allow, we do not currently publish our Scope 3 emissions.

9 The graphs below summarise energy consumption and associated carbon emissions for each of our UK and Ireland studios, over a 2013 baseline and in comparison to the previous reporting year 2016.

Figures 1-4 show total energy consumption and carbon emissions by studio. This is illustrated in total and per capita, as this allows us to make direct comparisons between our studios and other organisations.

\* In the graphs that follow, performance is measured against the baseline year (2013) and previous year of reporting (2016) for comparison.

Figure 1. Energy Consumption (kWh) per studio

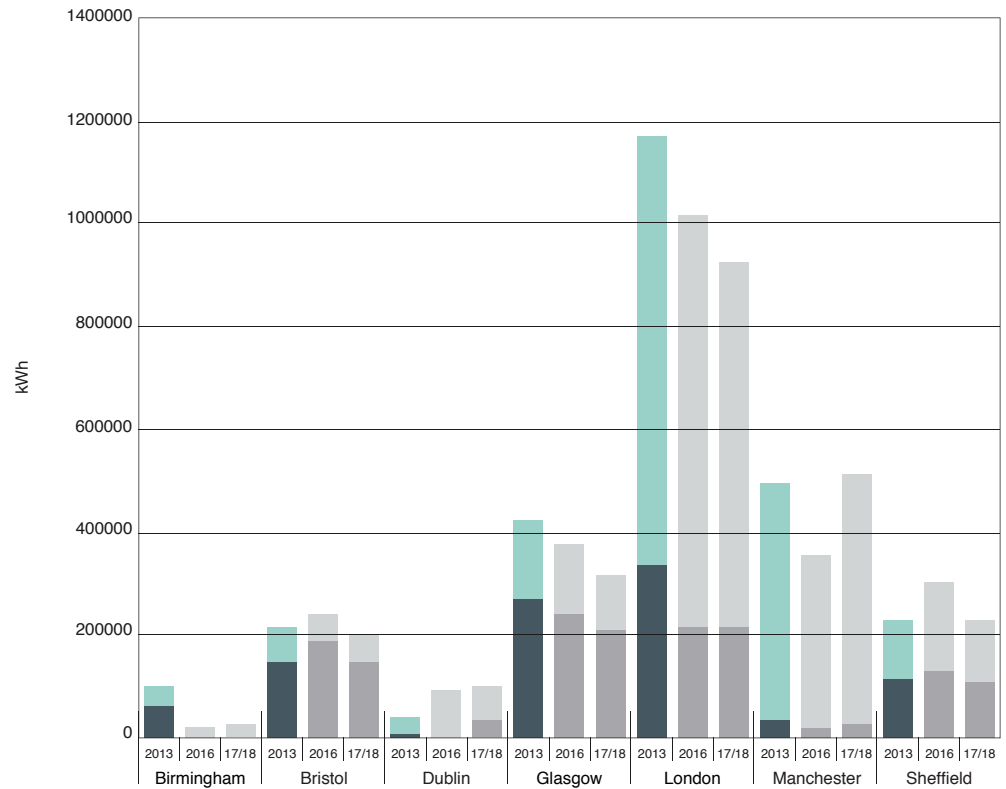


Figure 2. Carbon Emissions (CO<sub>2</sub>e) per studio

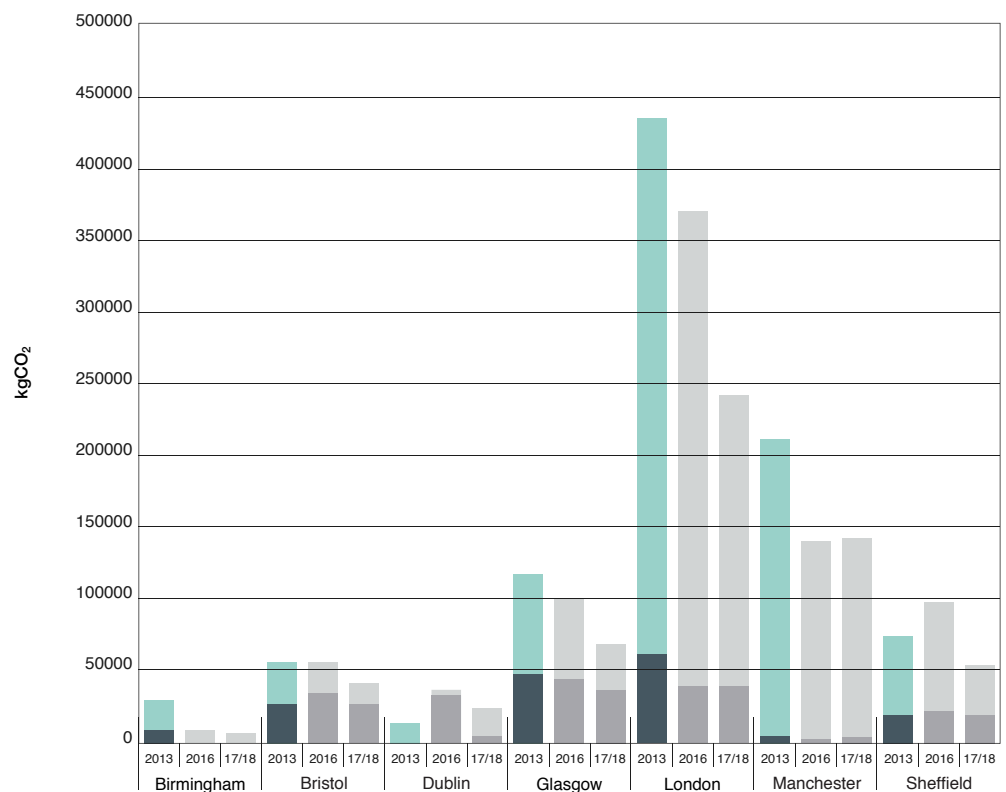


Figure 3. Energy Consumption per capita (kWh/capita) per studio

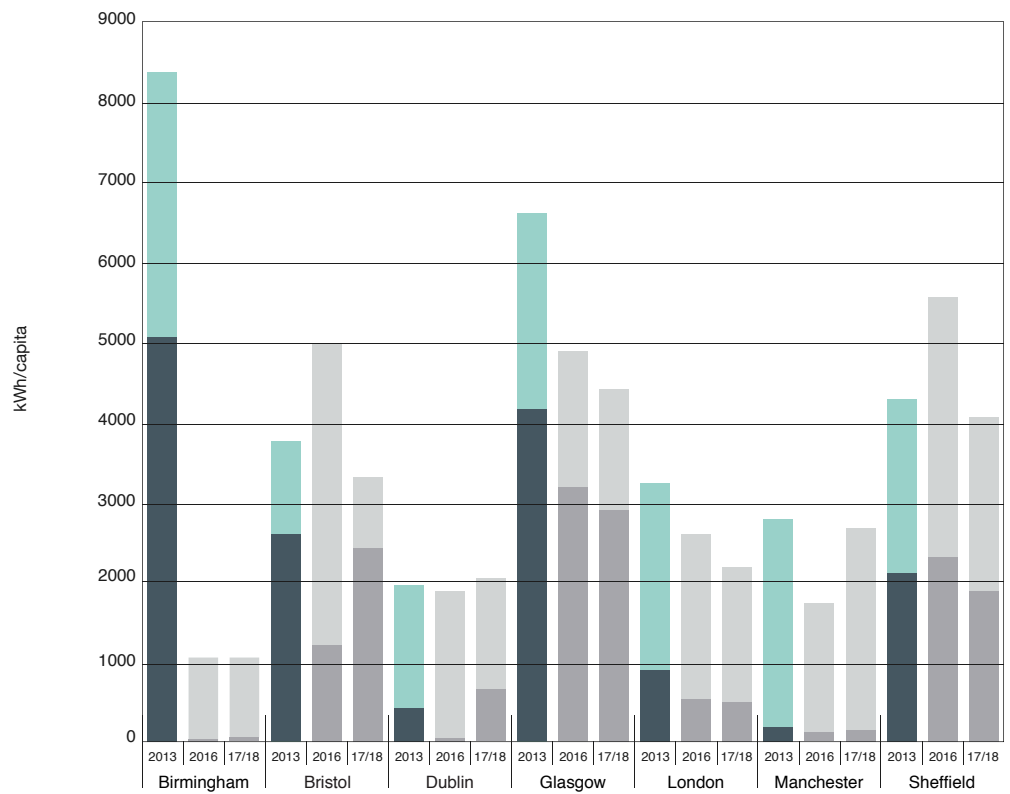
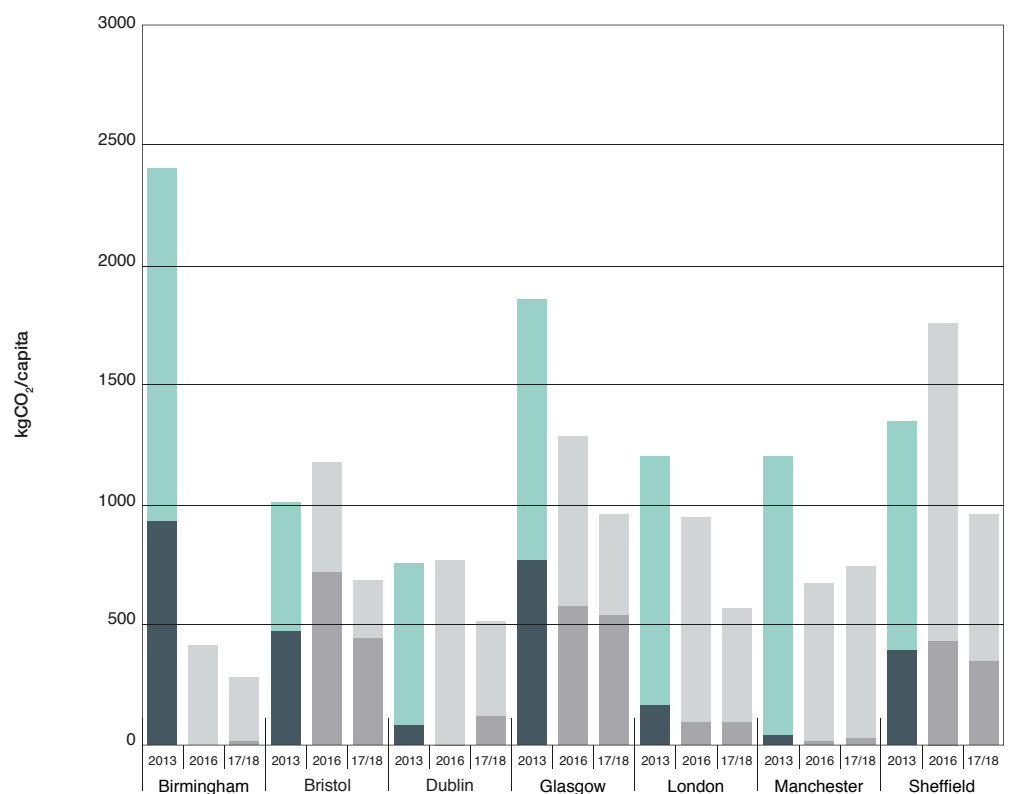


Figure 4. Carbon Emissions per capita (CO<sub>2</sub>e/capita) per studio



# 11 Weather Normalisation

Heating degree days (HDDs) are a measurement designed to quantify the demand for energy needed to heat a building derived from measurements of outside air temperature.

The figures below demonstrate the impact of the number of heating degree days on annual gas consumption in

2017-2018, compared to the baseline and previous year for each studio location. The figures below confirm, as would be expected, that gas consumption generally varies in accordance with the number of HDD. The large decrease in gas consumption in Birmingham between 2013 and 2016 however, is predominantly due to the move to a new premises towards the end of 2014.

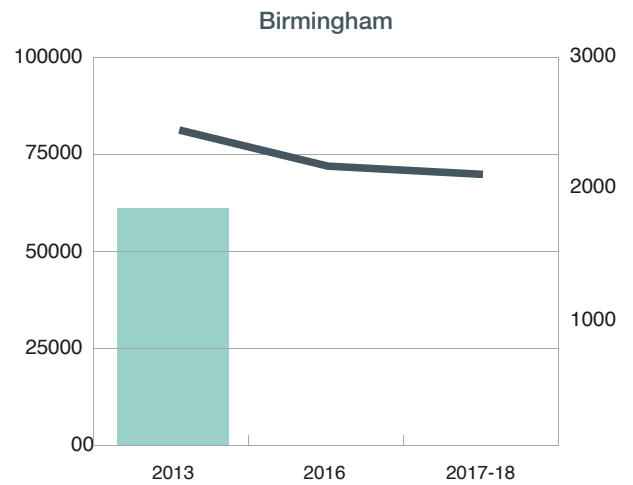
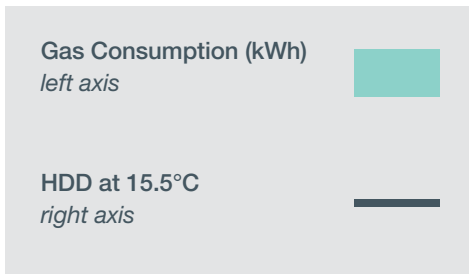


Figure 5. Gas consumption in relation to heating degree days for the Birmingham studio

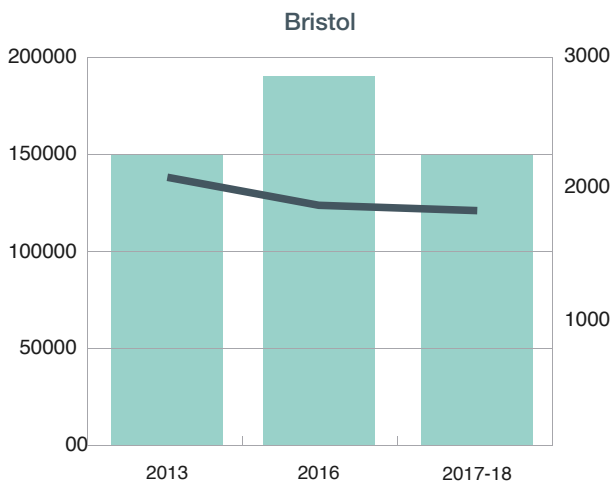


Figure 6. Gas consumption in relation to heating degree days for the Bristol studio

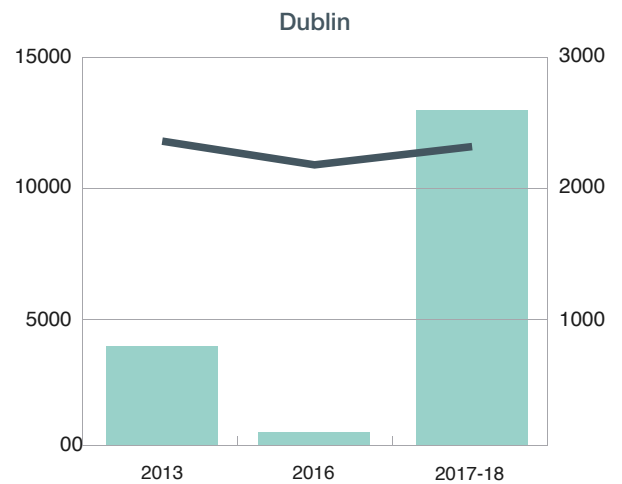


Figure 7. Gas consumption in relation to heating degree days for the Dublin studio



Temperatures in the winter of 2017-2018 fluctuated. In particular, the end of February and the beginning of March experienced colder temperatures due to a storm coming in from the east, bringing with it a spell of snow, and increasing the number of Heating Degree Days in Glasgow, Dublin, London and Manchester. This cold spell however was not significant to increase the number of HDDs in the areas of Birmingham, Bristol and Sheffield.

The large increase in gas consumption in Dublin in 2018 is a result of a number of staff moving from a building with electrical heating, to occupy the rest of the old stone building, which relies on a traditional gas boiler system. The number of HDD will be referred to further in our analysis of individual studio performance.

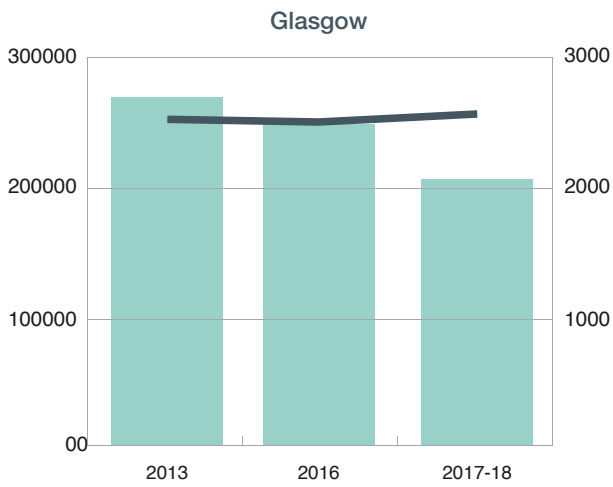


Figure 8. Gas consumption in relation to heating degree days for the Glasgow studio

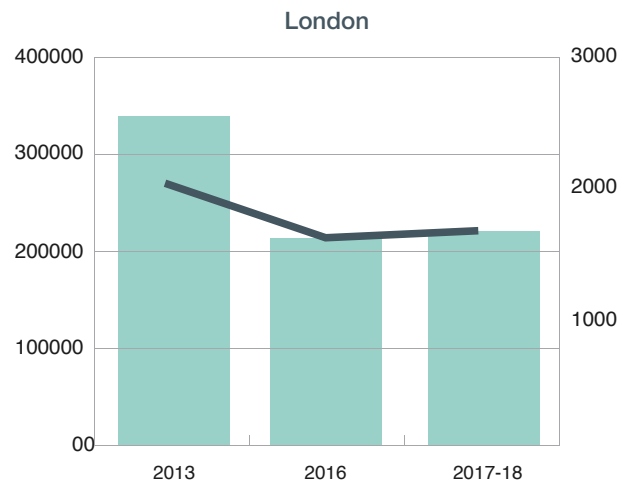


Figure 9. Gas consumption in relation to heating degree days for the London studio

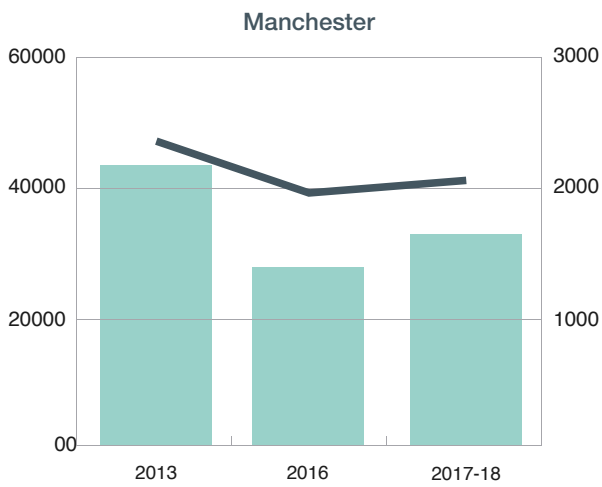


Figure 10. Gas consumption in relation to heating degree days for the Manchester studio

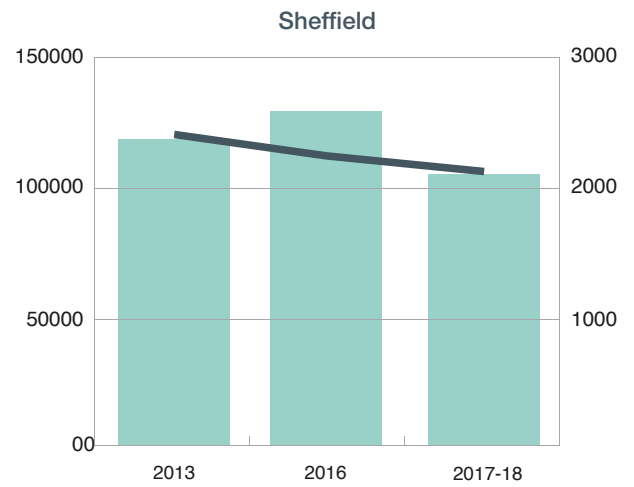


Figure 11. Gas consumption in relation to heating degree days for the Sheffield studio



# Water

Table 6 shows consumption by studio, and normalised per capita. Although our total water consumption has increased by almost 4% over the 2013 baseline, there has been a 5% decrease over the 2016 totals. Per capita, there has been an 11% decrease over the 2013 baseline and a decrease of 8% over the 2016 figures.

This is attributed to improvements made to water systems across the studios. For example, the Bristol studio has installed tap limiters and upgraded urinals with water efficient models and inefficient taps in the disabled toilets at the Manchester studio have been replaced. In addition, an increase in staff numbers enabled by rearranging studio layouts may have contributed to the decrease in per capita consumption.

Our water consumption levels show progress, with most studios achieving a decrease in overall water consumption relative to the previous reporting year. This is discussed further in the individual studio analysis below. As noted in the previous report, data granularity is still an issue, with water sub-metering not available in all of our UK and Ireland studios.

As our staff numbers grow, the efficiency of existing sanitary fittings become more important. Our studios are continuously reviewing the sanitary fittings, and where they are nearing the end of their life cycle, efforts are made to install new more water efficient fittings, or retrofit to reduce consumption.

Table 6. Total water consumption

Water	2013 (baseline)	2017-2018	% change against baseline	% change over previous year
Total (m <sup>3</sup> )	6023.16	6257.11	+3.88	-4.65
Per capita (m <sup>3</sup> )	8.05	7.16	-11.03	-7.53

Table 7. Water consumption per studio

m <sup>3</sup>	2013 (baseline)	2017-2018	% change against baseline	% change over previous year
Birmingham	50.28	126.21	+151	+46.98
Bristol	642.21	219.00	-65.90	-8.75
Dublin	135.97	411.50	+202.63	+29.44
Glasgow	179.00	258.00	+44.13	-7.19
London	3075.00	3378.00	+9.85	-0.88
Manchester	1590.19	1664.32	+4.66	-13.88
Sheffield	350.50	200.08	-42.92	-33.31

Table 8. Water consumption per studio per capita

m <sup>3</sup> /capita	2013 (baseline)	2017-2018	% change against baseline	% change over previous year
Birmingham	4.16	5.42	+30.44	+36.23
Bristol	11.15	3.61	-67.60	-28.40
Dublin	6.32	8.34	+31.80	+27.51
Glasgow	2.78	3.60	+29.39	-0.85
London	8.48	8.01	-5.54	-8.36
Manchester	9.04	8.75	-3.17	-5.81
Sheffield	6.48	3.52	-45.66	-35.36

Figure 12. Water Consumption (m<sup>3</sup>) by studio

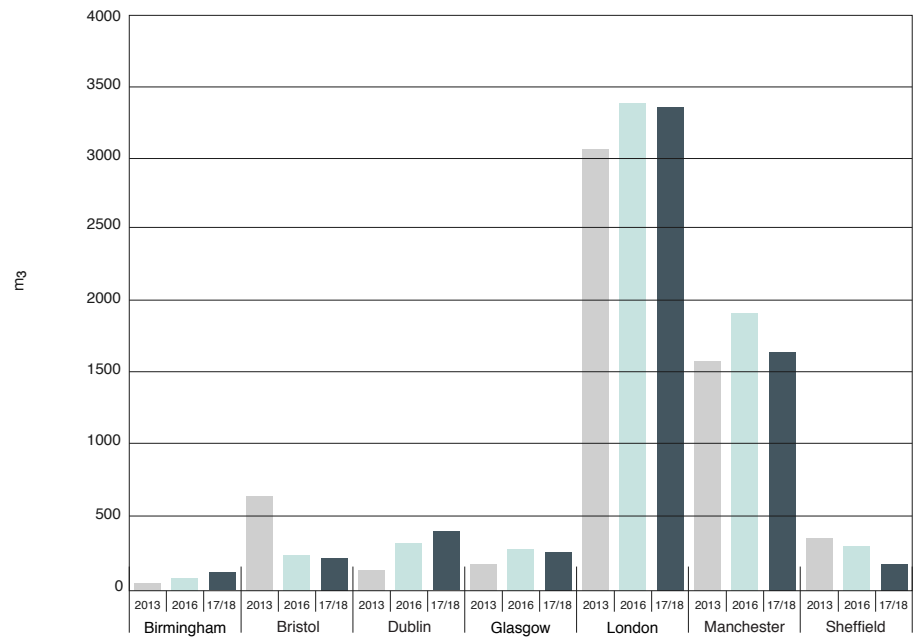
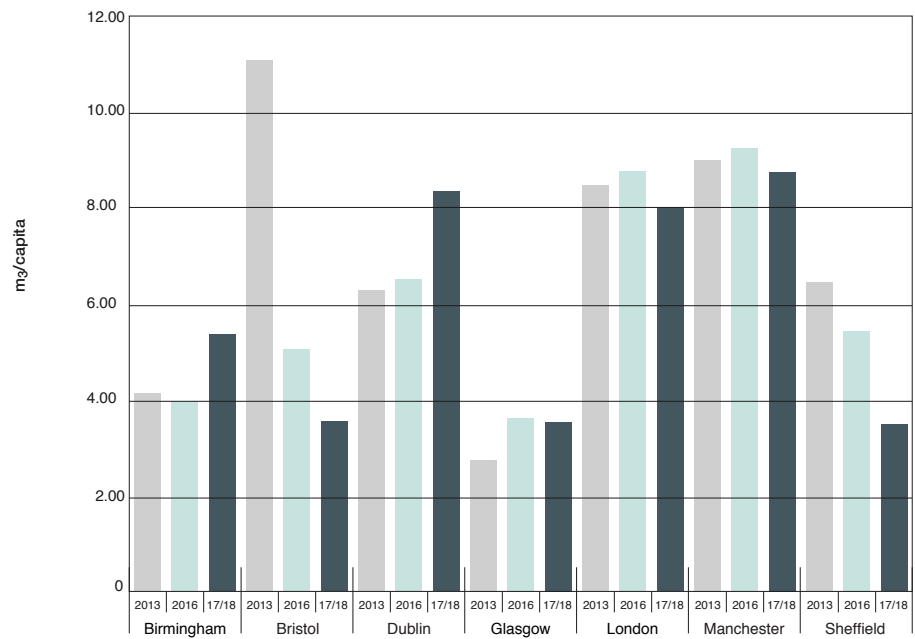


Figure 13. Water Consumption per capita (m<sup>3</sup>/capita) by studio





# Business Travel Emissions

BDP continuously strives to improve the way we work and improve the processes we have in place to minimise the impact we have on the environment. One of the many ways we aim to reduce our carbon footprint is to actively encourage and promote sustainable travel.

UK transport CO<sub>2</sub> emissions are expected to rise by 35% between 1990 and 2030, with transport accounting for around a quarter of UK greenhouse gas emissions. Furthermore, being inactive is a serious threat to our health. Current physical activity levels in the UK are low, with only 66% of men and 58% of women meeting the NHS recommendation of at least 150 minutes of weekly exercise.

Recognising that the extent of travel required is project specific and largely dictated by clients, we have not set a specific target for a reduction in carbon emissions related to business travel. We are nonetheless committed to continually reducing our carbon emissions and 2017-2018 saw a 44% decrease in total business travel emissions, and a 60% decrease in per capita business emissions against our 2013 baseline. As presented in table X, this is largely a result of a 61% reduction in the distance travelled via international flights and 8% reduction in car travel mileage, despite an increase in rail travel, domestic and short haul flights.

Our reported business travel emissions for 2017-2018 have been calculated based on train and rail travel bookings through our travel provider Egencia, part of the Expedia group specifically aimed at business travel. Vehicle emissions are calculated based on business mileage expenses claims. At present we are unable to account for vehicle emissions from taxi journeys, however we are looking at means of accounting for taxi mileage in future business travel emissions reporting.

2017 saw the development of our first Business Travel Carbon Management Plan, which has been successfully embedded across the practice. The aim of the travel plan is to provide staff with alternative, sustainable travel options, reducing reliance on single occupancy car use. Benefits of an effective travel plan include:

- Reduced congestion leading to a reduction in harmful carbon emissions and improved air quality
- Opportunities to build healthy exercise into daily life
- A positive impact on BDP's environmental performance through CO<sub>2</sub> reductions
- Reduction in travel costs

As part of the travel plan, we have established a travel hierarchy, setting out a decision making framework to minimise travel, where possible, and its impact. Staff are required to follow this framework to help them make the right travel/transport decisions.

## BDP Travel Hierarchy

1. Can the journey be avoided through the use of audio or video conferencing facilities? Video conferencing facilities and equipment are available in all our studios. Alternatively, Skype for Business is now fully established in all our UK and Ireland studios, allowing employee-employee video conferencing facilities with additional options such as sharing screens.
2. Can the journey be carried out by foot, bicycle or public transport? Cycle facilities are provided at nearly all our studios to make it easier for staff to not only commute to work by bike, but to encourage BDP staff to utilise cycle transport for business travel. Two Brompton bikes are available in our Manchester and London studios and an access key for the Santander Cycle Hire scheme is also available in the London studio, with a cycle helmet and high-vis jacket available on request. To encourage the use of public transport as an alternative to car use, BDP pays or reimburses the cost of a business journey made on public transport.
3. Where none of the above options is feasible, private transport can then be considered. Where car travel is necessary, we encourage our staff to explore opportunities to car share, request a hire car with low emissions, and if possible, utilise a park and ride facility.
4. Air travel as the last resort. Whilst we recognise that air travel may sometimes be required as part of our client facing work, we believe it is still necessary to challenge the need, frequency and mode of travel. The need to fly should take into consideration the purpose of the trip, total duration of the journey and total length of the trip. Staff are required to consider all suitably alternative travel options available before booking air travel.

Figures 14 and 15 show our overall business travel emissions per capita and by studio (per capita), over a 2013 baseline and in comparison to the previous year. The baseline year is shown in yellow.

Figure 14.  
Business Travel  
(kgCO<sub>2</sub>e) per  
capita

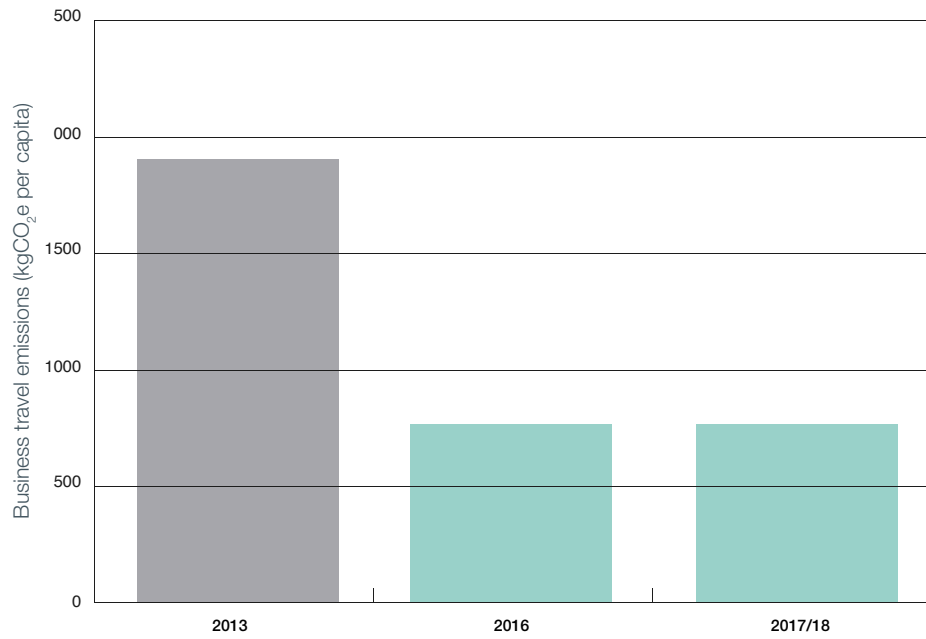
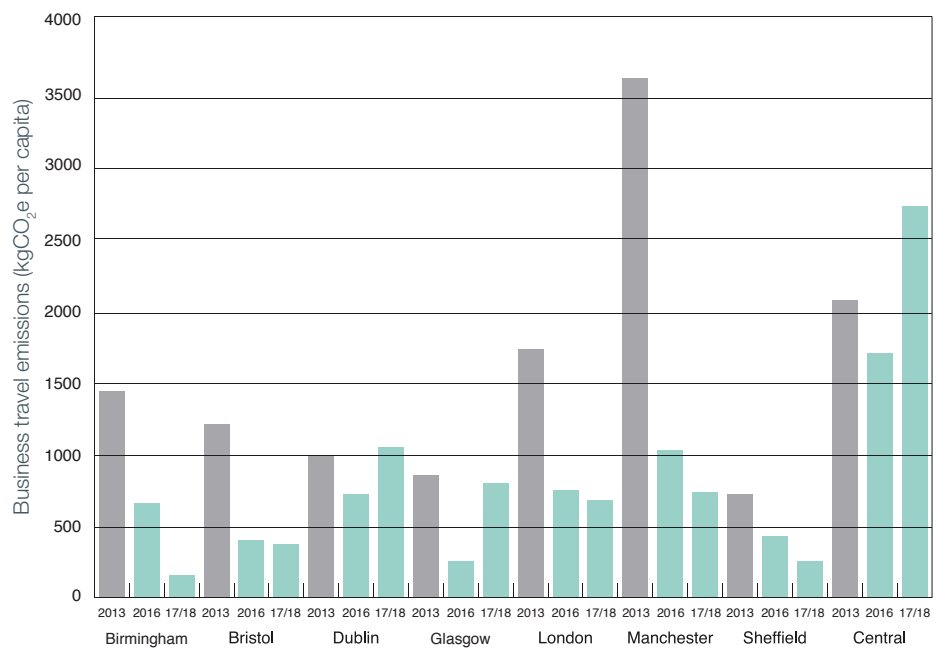


Figure 15.  
Business Travel  
(kgCO<sub>2</sub>e) (by  
studio) per capita





# Materials and Waste

All our studios have in place robust waste management procedures to ensure that we are accountable for the waste we produce and make every effort to maximise waste diversion from landfill. Waste management procedures vary considerably between each studio. For example, in some studios comingled waste is collected for sorting and recycling off site, whilst in other studios waste is separated at source.

Where our studios are located in multi-tenanted buildings, waste management is typically dealt with on a whole-building basis. Whilst

the variation in data per studio does not lend itself well to the analysis of data trends, we feel that it is important to our environmental reporting to include yearly figures. Table 9 below shows the availability of waste data and waste streams across all of our studios, demonstrating the variation in approach. Over the past year, a number of studios have added waste streams. Glasgow now has an organic waste collection, Manchester now separately collects printer cartridges and Sheffield recycles plastic.

Table 9. Waste data availability per studio


Waste		Birmingham	Bristol	Dublin	Glasgow	London	Manchester	Sheffield
	White paper/ Cardboard	✓	✓	✓	✓	✓	✓	✓
	Comingled recyclables (plastic)	✓	✓	✗	✓	✓	✓	✓
	Glass	✗	✓	✗	✓	✓	✗	✗
	Organic waste	✗	✓	✗	✓	✓	✓	✗
	General waste	✗	✓	✗	✓	✓	✗	✓
	Printer cartridges	✗	✓	✗	✓	✓	✓	✓
	Mobile phones	✗	✓	✗	✗	✓	✗	✗
	Computers	✗	✓	✗	✓	✓	✗	✗
	Printers	✗	✓	✗	✓	✓	✓	✗
	Batteries	✗	✓	✗	✗	✓	✗	✗
	Other WEEE	✗	✓	✗	✓	✓	✗	✗

Table 10 reports the quantities of waste and recyclables produced per year since formal environmental reporting began in 2013. When interpreting this table it is necessary to refer to the waste data availability table 9 to note where lack of data availability may impact on reported figures.

Despite an increase in staff numbers, we have succeeded in reducing nearly all our waste streams for 2017-2018, relative to the previous year. This demonstrates the effectiveness of studio campaigns, reminding staff to reduce waste where possible, and availability of mixed waste streams. The increases in electronic waste are attributed to machine upgrades.

Table 10. Quantities of waste and recyclables (kg)

Waste		2013	2017-2018	% change against baseline	% change over previous year
White paper/Cardboard	Kg	14113	13886	Decrease 1.61%	Decrease 31.52%
Comingled recyclables (plastic)	Kg	75864	50927	Decrease 32.87%	Decrease 22.9%
Glass	Kg	4680	179	Decrease 96.18%	Decrease 13.94%
Organic waste	Kg	21020	30134	Increase 43.36%	Decrease 26.66%
General waste	Kg	42357	27193	Decrease 35.80%	Decrease 19.74%
Printer cartridges	Units	143	259	Increase 81.12%	Decrease 52.30%
Mobile phones	Units	21	24	Increase 10.42%	Increase 60.00%
Computers	Units	38	103	Increase 63.11%	Decrease 25.90%
Printers	Units	3	3	No change	Decrease 50%
Batteries	Kg	164	146	Decrease 11.03%	Increase 484%
Other WEEE	units	368	2004	Increase 444.57%	Increase 214.11%



# Studio Analysis 2017-2018

## Birmingham



	2013 baseline	2017 2018	% change over 2013 baseline	% change over last year
Scope 1 emissions per capita (kgCO <sub>2</sub> /capita)	937.24	14.85	Decrease 98.42%	Increase 92.48%
Scope 2 emissions per capita (kgCO <sub>2</sub> /capita)	1468.76	273.80	Decrease 81.36%	Decrease 34.74%
Energy consumption kWh per capita (scope 1 and 2)	8389.59	1047.90	Decrease 87.51%	Decrease 1.15%
Water consumption per capita (m <sup>3</sup> /capita)	4.16	5.42	Increase 30.44%	Increase 36.23%

The 2013 baseline does not relate to the current Birmingham studio, as BDP only moved into the current premises in 2015. Nonetheless, the benefits of the high sustainability standards of the current building are evidenced in the significant decrease of per capita emissions relative to 2013 levels. When we have sufficient consistent reporting of data for the current studio, a new baseline will be established.

The increase in overall and per capita gas consumption compared to the previous year can be attributed to a new gas meter fitted in November 2017. Readings from this for December 2017 saw an 840% increase in gas consumption, relative to December 2016 levels. This suggests the meter was incorrectly calibrated on installation and the matter has been brought to the landlord's attention.

Despite the installation of a more efficient water tap in the kitchen, both overall and per capita water consumption has appeared to increase compared to the previous year. Continued metering issues is one possible reason, with water consumption in July 2018 appearing to be 300% larger than that for July 2016. There is also a lack of sub metering which means that our readings are pro-rated per floor area of a studio shared with a number of other tenants, whose environmental performance we have no control over. Despite this increase relative to 2016, water consumption for the Birmingham studio is relatively small, and accounts for only 2% of water consumption across all BDP studios.

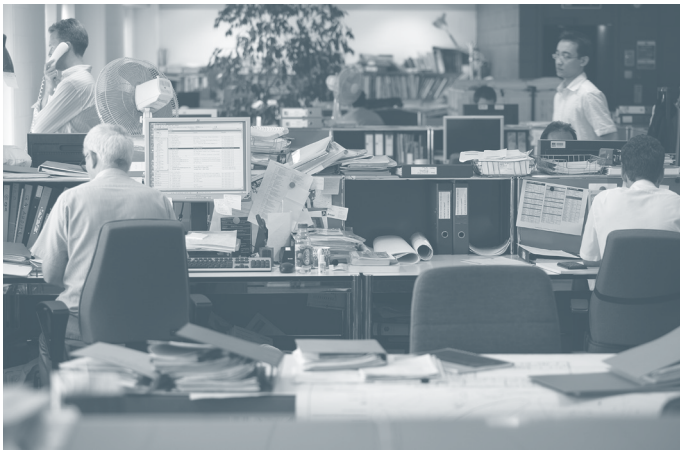
Overall electrical consumption between 2016 and 2017-2018 has remained stable, whilst scope 2 emissions per capita has seen a significant reduction. This can be attributed to the decarbonisation of the grid.

Discussions with the landlord to install sub-meters to the BDP floor area for both water and electricity will be continued in 2018-2019. Quotes will also be sourced to examine the feasibility of doing this in-house.

**Studio Manager: Collene Turner**



## Bristol



	2013 baseline	2017 2018	% change over 2013 baseline	% change over last year
Scope 1 emissions per capita (kgCO <sub>2</sub> /capita)	475.53	447.98	Decrease 5.79%	Decrease 37.90%
Scope 2 emissions per capita (kgCO <sub>2</sub> /capita)	536.08	246.50	Decrease 54.02%	Decrease 46.25%
Energy consumption kWh per capita (scope 1 and 2)	3787.19	3305.98	Decrease 12.71%	Decrease 34.32%
Water consumption per capita (m <sup>3</sup> / capita)	11.15	3.61	Decrease 67.60%	Decrease 28.40%

In response to staff tampering with thermostats as reported in 2015 and 2016, the thermostat was made tamper proof. This contributed to a reduction in overall and per capita gas consumption relative to the previous reporting year. In addition, the Bristol studio saw a 27% expansion in staff numbers for 2017-2018 compared to 2016, which has played a role in the lower per capita consumption. A slight decrease in the number of Heating Degree Days has further contributed to reduced gas consumption.

Despite the increase in staff numbers, electricity consumption has remained stable, which may be attributed to an increase in staff awareness. In addition to the increase in staff numbers, the decarbonisation of the grid has played a major role in reducing scope 2 emissions per capita.

The decrease in water consumption in total and per capita is attributed to the installation of tap limiters and water-efficient urinals, as well as the increase staff numbers.

**Studio Manager: Jamie Lloyd**

## Dublin



	2013 baseline	2017 2018	% change over 2013 baseline	% change over last year
Scope 1 emissions per capita (kgCO <sub>2</sub> /capita)	83.41	125.97	Increase 71.75%	Increase 176.70%
Scope 2 emissions per capita (kgCO <sub>2</sub> /capita)	673.62	387.63	Decrease 42.46%	Decrease 49.59%
Energy consumption kWh per capita (scope 1 and 2)	1965.37	2148.17	Increase 9.30%	Increase 0.02%
Water consumption per capita (m <sup>3</sup> / capita)	6.32	8.34	Increase 31.80%	Increase 27.51%

January 2018 saw the architectural studio move back to join the engineers and other staff in the Old Stone Building, of which BDP now occupies all 3 floors. The move of a number of staff from the architectural studio which used electrical heaters, to the Old Stone Building with gas heating, has resulted in a reduction in electricity consumption and increase in gas consumption overall and per capita relative to both the baseline and 2016. Dublin also experienced a rise in Heating Degree Days for 2017-2018 as compared to 2016, further increasing gas use.

The installation of LED lighting on the ground and first floors has resulted in a significant reduction in overall and per capita electricity consumption.

Water consumption overall and per capita has continued to increase. This is partly due to a burst water pipe in December, which necessitated maintenance works, sometimes over weekends. An additional factor was the move of architectural staff into the Old Stone Building, which uses older water fittings. This is evidenced by the increase in water readings from January 2018.

Actions planned for 2018-2019 include installing LED lighting on the second floor, introducing more lighting control. Further plans include the installation of water booster and zip taps on the second floor, and the installation of urinal flushing economisers.

**Studio Manager: Frank Fleming**

## Glasgow



	2013 baseline	2017 2018	% change over 2013 baseline	% change over last year
Scope 1 emissions per capita (kgCO <sub>2</sub> /capita)	767.20	539.73	Decrease 29.65%	Decrease 8.44%
Scope 2 emissions per capita (kgCO <sub>2</sub> /capita)	1085.54	415.02	Decrease 61.77%	Decrease 40.14%
Energy consumption kWh per capita (scope 1 and 2)	6605.46	4400.08	Decrease 33.39%	Decrease 9.95%
Water consumption per capita (m <sup>3</sup> /capita)	2.78	3.60	Increase 29.39%	Decrease 0.85%

The replacement of two main boilers within the second floor plantroom has led to a reduction in overall and per capita gas consumption relative to the baseline. A reduction is also seen relative to 2016, despite a harsher winter in 2017-2018, evidenced by an increase in Heating Degree Days.

Total and per capita electricity consumption has also declined significantly. This is attributed to the installation of LED lighting, and the decarbonisation of the grid.

While water consumption has increased in 2017-2018 compared to the baseline, these levels are slightly lower than for the previous reporting year. This could be attributed to staff campaigns to raise awareness. Overall water consumption of the Glasgow studio accounts for approximately 4% of BDP consumption across all locations.

Action plans for 2018-2019 include the replacement of control panels for improved control and efficiency, as well as the replacement of the backup boilers. A review of water fittings is also scheduled, including the replacement of WC flushes with a half flush to conserve water.

**Studio Manager: Laura Clark**

## London



	2013 baseline	2017 2018	% change over 2013 baseline	% change over last year
Scope 1 emissions per capita (kgCO <sub>2</sub> /capita)	170.06	94.70	Decrease 44.31%	Decrease 7.19%
Scope 2 emissions per capita (kgCO <sub>2</sub> /capita)	1023.16	476.93	Decrease 53.39%	Decrease 43.59%
Energy consumption kWh per capita (scope 1 and 2)	3220.82	2199.65	Decrease 31.71%	Decrease 15.61%
Water consumption per capita (m <sup>3</sup> / capita)	8.48	8.01	Decrease 5.54%	Decrease 8.38%

Despite a slightly colder winter, 2017-2018 has seen the overall gas consumption remain consistent, and a reduction in per capita gas consumption compared to the previous year. This is due to the installation of higher efficiency condensing boilers at the end of the summer 2017. A studio redesign has also boosted the number of staff that can be accommodated per floor area.

The decrease in overall electricity consumption and scope 2 emissions is attributed to continual upgrades to IT equipment, an increased awareness among staff, and the decarbonisation of the grid. The relocation of a number of staff to work at project sites may also be a contributing factor.

Similarly, per capita water consumption has decreased relative to the previous year, also attributed to increased staff awareness and number of staff working on site.

Actions for 2018-2019 include the replacement of heating and cooling controls, as well as continuing to review and replace light fittings for increased efficiency.

**Studio Manager: Paul Hobbs**

## Manchester



	2013 baseline	2017 2018	% change over 2013 baseline	% change over last year
Scope 1 emissions per capita (kgCO <sub>2</sub> /capita)	37.79	25.98	Decrease 31.25%	Increase 29.00%
Scope 2 emissions per capita (kgCO <sub>2</sub> /capita)	1161.61	723.89	Decrease 37.68%	Decrease 15.07%
Energy consumption kWh per capita (scope 1 and 2)	2812.87	2698.50	Decrease 4.07%	Increase 23.87%
Water consumption per capita (m <sup>3</sup> /capita)	9.04	8.75	Decrease 3.17%	Decrease 5.81%

2017-2018 saw a slight decrease in electricity consumption in total and per capita, due to the installation of LED lighting as existing lighting needed to be replaced. The reduction in scope 2 emissions per capita is further aided by the decarbonisation of the grid.

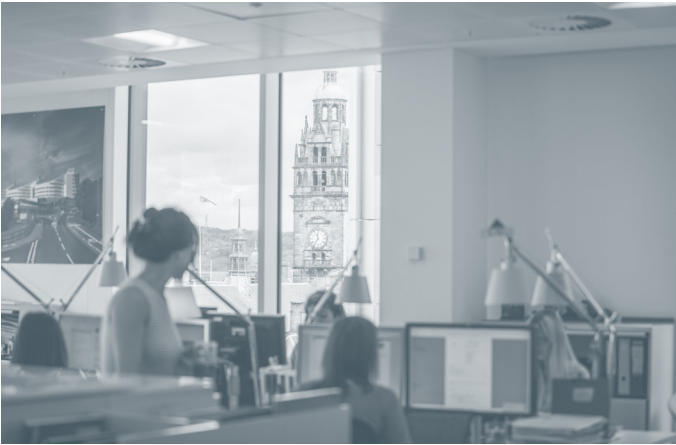
The increase in gas consumption overall and per capita is attributed to a rise in Heating Degree Days over the winter 2017-2018. In particular, an unseasonably cold February and March saw gas consumption rise 40% higher for the two months as compared to 2016.

Water consumption per capita has slightly decreased due to the replacement of taps in the disabled toilets with more efficient models. Optimisation of the BMS has also allowed for issues such as leaks to be detected quickly, thus minimising losses and leading to a reduction in overall water consumption.

Actions for the next year include the replacement of existing printers with more efficient models, continued installation of LED fittings and the replacement of old and inefficient water fittings. The BMS will continue to be reviewed and a third party analysis of data carried out to further optimise the system.

**Studio Manager: Kevin Sutton**

## Sheffield



	2013 baseline	2017 2018	% change over 2013 baseline	% change over last year
Scope 1 emissions per capita (kgCO <sub>2</sub> /capita)	393.79	347.66	Decrease 11.72%	Decrease 19.08%
Scope 2 emissions per capita (kgCO <sub>2</sub> /capita)	960.66	610.19	Decrease 36.48%	Decrease 54.04
Energy consumption kWh per capita (scope 1 and 2)	4296.19	4045.46	Decrease 5.84%	Decrease 15.61%
Water consumption per capita (m <sup>3</sup> /capita)	6.48	3.52	Decrease 45.66%	Decrease 35.36%

The Sheffield studio moved to new premises at 3 St Paul's Place in December 2017. Therefore, the 2013 baseline does not relate to the current Sheffield studio. As with our Birmingham studio, when we have sufficient data for the current studio, a new baseline will be established.

The new BREEAM Excellent premises with an EPC Level B rating, include floor to ceiling glazing, is connected to a District Heating System, and is fitted with more efficient water fittings compared to the previous studio. The benefits of the move can be seen in the significant reductions in gas, electricity and water consumption compared to both 2013 and 2016 levels.

Actions taken in 2017 included improvements made to lighting and climate control in the previous studio, which had helped to reduce electrical consumption in 2017, before the relocation. A new induction pack has also been created for new starters at our Sheffield studio, which includes energy training.

**Studio Manager: Susan Brookes**



# IT Energy and Environmental Improvements

As part of our ISO 50001 commitments we have developed and implemented a responsible procurement policy for IT equipment and services, which we are continually seeking to improve. This policy sits alongside and draws on the principles within our overarching responsible procurement policy. The IT responsible procurement policy includes guidelines for the specification of IT equipment, including specific environmental and energy standards to be achieved for common equipment (monitors, desktops, laptops, projectors, printers, servers).

Across all of our UK and Ireland studios, a programme of continual IT improvements ensures that we benefit from the latest developments in energy efficient and environmentally sound products. Headlines for 2017-2018 include:

- Continuation of server virtualisation** to reduce physical space, energy consumption and cooling requirements. Including the decommissioning of physical servers.
- Virtual Desktop for collaboration.**  
 The introduction of a virtual desktop pod in London, June 2017, and Manchester, June 2018, is enabling staff in our Sheffield, Glasgow, Dublin and India studios to work remotely and collaborate on projects in London and Manchester, without the added travel emissions. Each pod enables up to 60 staff to work virtually at any one time. The robust technological infrastructure also saves time and power that was previously used to download and reload large amounts of data to local drives.
- Reduced cooling requirements.**  
 The operating temperature of the server room in the Manchester studio has increased from 25° to 28°, reducing direct energy demand associated with cooling.

# Summary

The following graphs provide a summary of our environmental impact over the 2017-2018 BDP FY. Our performance continues to improve, but the opportunities for easy wins become less obvious, requiring an increase in effort and investment.

Our interventions will continue to be determined based on those that offer the greatest benefit to our working environment, and where the investment required is appropriate for our commercial position and length of lease.

We will continue to review the relevance of targets, and adapt or amend where we feel necessary. In doing this we will ensure that we continue to drive down our environmental impact.



Figure 16. Scope 1 and 2 carbon emissions per capita against 2018 target.

\*The dashed line represents the 2018 target

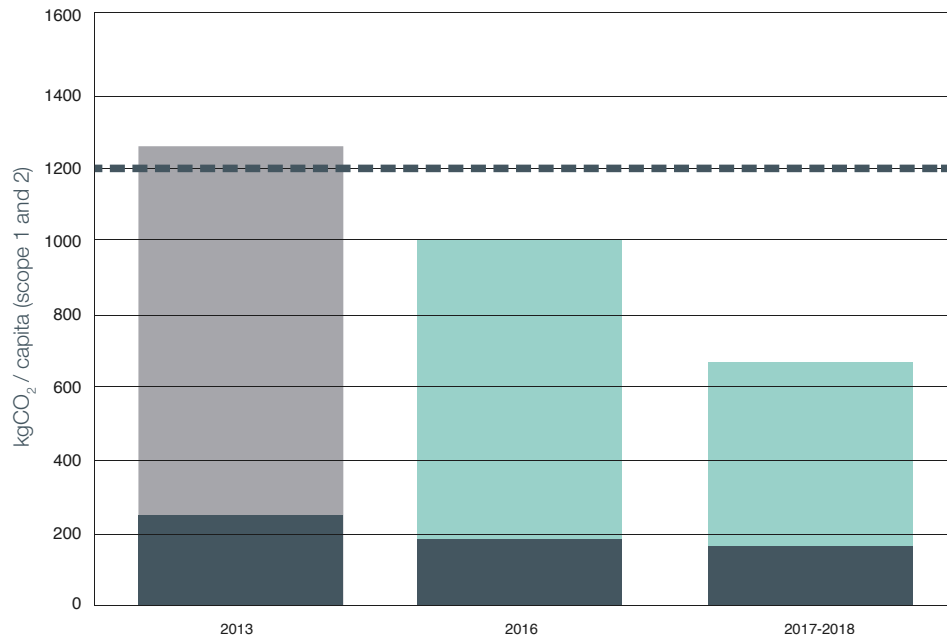
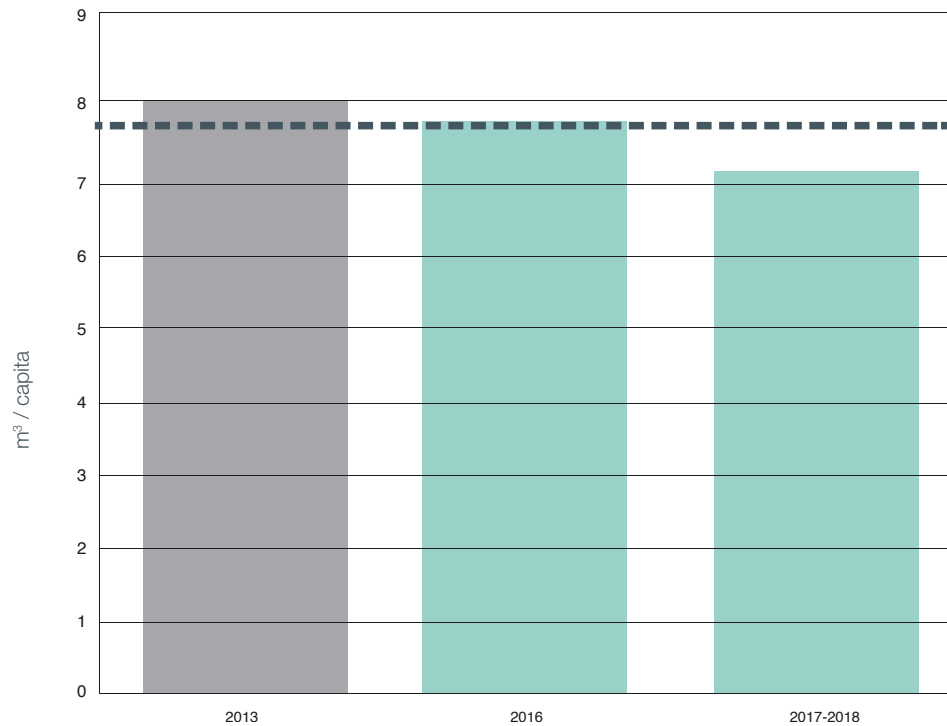


Figure 17. Water consumption per capita against 2018 target.

\*The dashed line represents the 2018 target



# Future Projections

In 2017-2018 we have been successful in considerably reducing our scope 1 and 2 carbon emissions. In doing so, we have achieved our target that carbon emissions do not exceed 1,000kgCO<sub>2</sub>e/capita, with a 47% reduction on the 2013 baseline. The previous studio analysis pages detail some of the studio-specific initiatives which have been successfully implemented to contribute to a reduction in carbon emissions.

Figure 18 below provides a projected energy consumption on the basis of the trend analysis applied to the data collected since 2010. This highlights that while emissions and electricity consumption has declined significantly, further work is required to identify energy saving opportunities in the future.

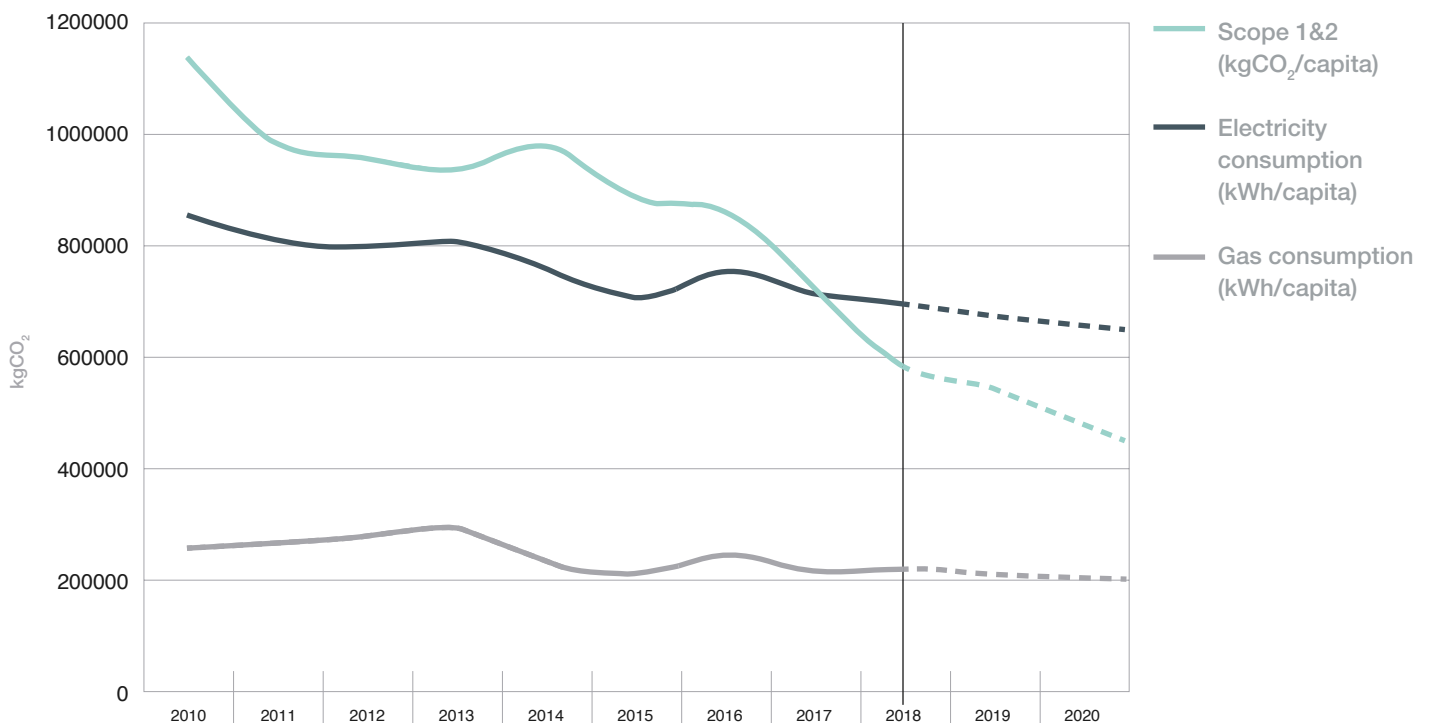


Figure 18. Projected future energy consumption (All Studios)

In 2017-2018, we have built on progress made in 2016, significantly reducing our per capita water consumption. We have achieved our target of a 5% decrease in per capita consumption by 2018, with an 11% reduction in water consumption below our 2013 baseline. Figure 19 below indicates projected water consumption on the basis of the trend analysis applied to the data collected since 2010. As it illustrates, the challenge now lies in reducing absolute water consumption.

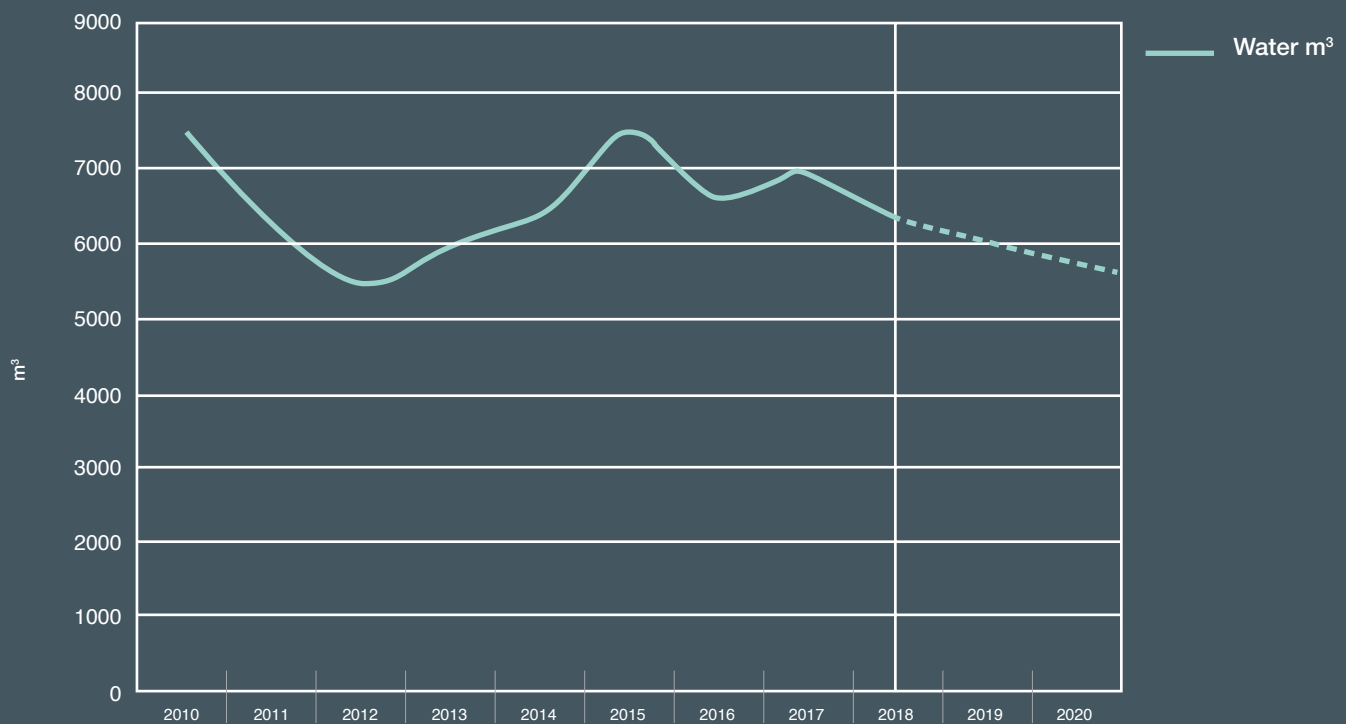


Figure 19. Projected future water consumption (All Studios)

# 2018-2019 Action Plan

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## Birmingham

- Obtain quotes for sub-metering.
- Increase communication with staff to reduce printing and use correct mixed recycling streams.

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## Bristol

- Upgrades to the studio kitchen including sensor operated, LED lighting and appliance upgrades to meet minimum energy efficiency performance.
- Improvements in space utilisation to increase desk space, reducing energy consumption per capita.

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## Dublin

- Review existing water and light fittings and lighting controls on second floor
- Introduce recycling for plastic waste.
- Review cycle facilities, in particular the possibility of adding a second cycle rack

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## Glasgow

- Ongoing communication with the building landlord to ensure access to meters and enable accurate monitoring.
- Replacement of backup boilers.
- Replacement of control panels for improved control and efficiency.
- Review of water fittings.

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## London

- Review and improve light fittings for increased efficiency.
- Replacement of heating and cooling controls.
- Implement three bin system on all floors.
- Promote the use of office Brompton and bike fob.

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## Manchester

- Replacement of 96 old light fittings with LEDs.
- Review of Building Monitoring System (BMS) for improved sub-metering data.
- Replacement of existing printers with more efficient models.
- Replacement of old and inefficient water fittings with more efficient fittings.

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## Sheffield

- Investigate potential water efficiency improvements at new premises.
- Maintain communication with staff to encourage use of segregated recycling in new premises.

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