

CCS

Carbon Reporting by Creative Scotland's Regularly Funded Organisations (RFOs)

2015–16

Foreword

Learning how to collect the information has taken time and effort from everyone involved but is getting better every year. There was a 31% increase in the amount of data and the quality of the data is improving.

Creative Carbon Scotland is an independent charity that helps the Scottish cultural sector to play its full part in achieving the transformational change to a sustainable future. We work as a strategic partner with **Creative Scotland**, the public body that supports the arts, screen and creative industries across Scotland, distributing funding from the Scottish Government and National Lottery. In its 10 year plan 2014–24, Creative Scotland updated its **environment policy** and introduced the **Environment Connecting Theme** which runs through all of its work and funding. As part of this, **Regular Funded Organisations**, a network of organisations across the country which form an important part of Scotland's cultural sector and are supported with three year funding, were required to report their carbon emissions as part of an annual statistical survey each year from 2015–16 onwards: previously reporting had been voluntary. This report covers the first year of this process.

We have been working with Scotland's cultural sector on tackling Climate Change for a number of years now and have had a fantastic response from all sub-sectors and all sizes of organisations. The information the RFOs have provided is invaluable for helping us all to recognise what action we can take to reduce our emissions.

Learning how to collect the information has taken time and effort from everyone involved but is getting better every year. More organisations submitted carbon emissions information than ever before, up from 90 last year to 117, all but one of the RFOs, this year. There was a 31% increase in the amount of data and the quality of the data is improving with more based on actual recorded figures rather than estimates. The marked increase in data on travel emissions reflects the dedicated work of the many Green Champions as this has previously been difficult to record.

For the year 2014–15 the overall reported carbon footprint was 8,000 tonnes CO₂e and this rose to 14,500 tonnes CO₂e in 2015–16. This does not represent an increase in actual emissions but an increase in the accuracy and completeness of the reports. This apparent rise is comparable with other sectors which introduce carbon reporting and likely to continue until reporting is well-established. In addition it is misleading to simply compare one year with another, as the organisations' activities will vary, leading to differences in their carbon emissions.

The overall picture is however becoming clearer and trends are emerging. It's now clear how much utilities emissions dominate for Theatres and Arts Centres and why travel emissions dominate for smaller organisations (Tenants) and we can use the information to plan future programmes to find opportunities for emissions reductions. With this data we're now in a good position to launch the next stage when we'll be helping organisations with Carbon Management Planning on their next projects. This is an approach which helps organisations identify their main sources of emissions and act to reduce them against a 'business as usual' scenario, addressing the problem of varying activities leading to varying emissions each year.

This year around 30% of all data items reported were estimates and not all reports included all of the requested information so there is still work to do. CCS will continue to support RFOs to continue to improve reporting levels and to make good use of the information gathered. We expect next year to bring improved quality and even greater benefits to organisations and their sustainability ambitions.

Fiona MacLennan, Carbon Reporting Project Manager CCS
4 / 7 / 2017

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RFO Carbon Reporting 2015 – 2016

2014–15
90

117 organisations reported almost 600 data items, up from just over 400 in 2014–15 with many providing data for all areas of reporting.

2015–16
117

CATEGORIES OF REPORTING ARTS ORGANISATIONS



Theatres



Tenants



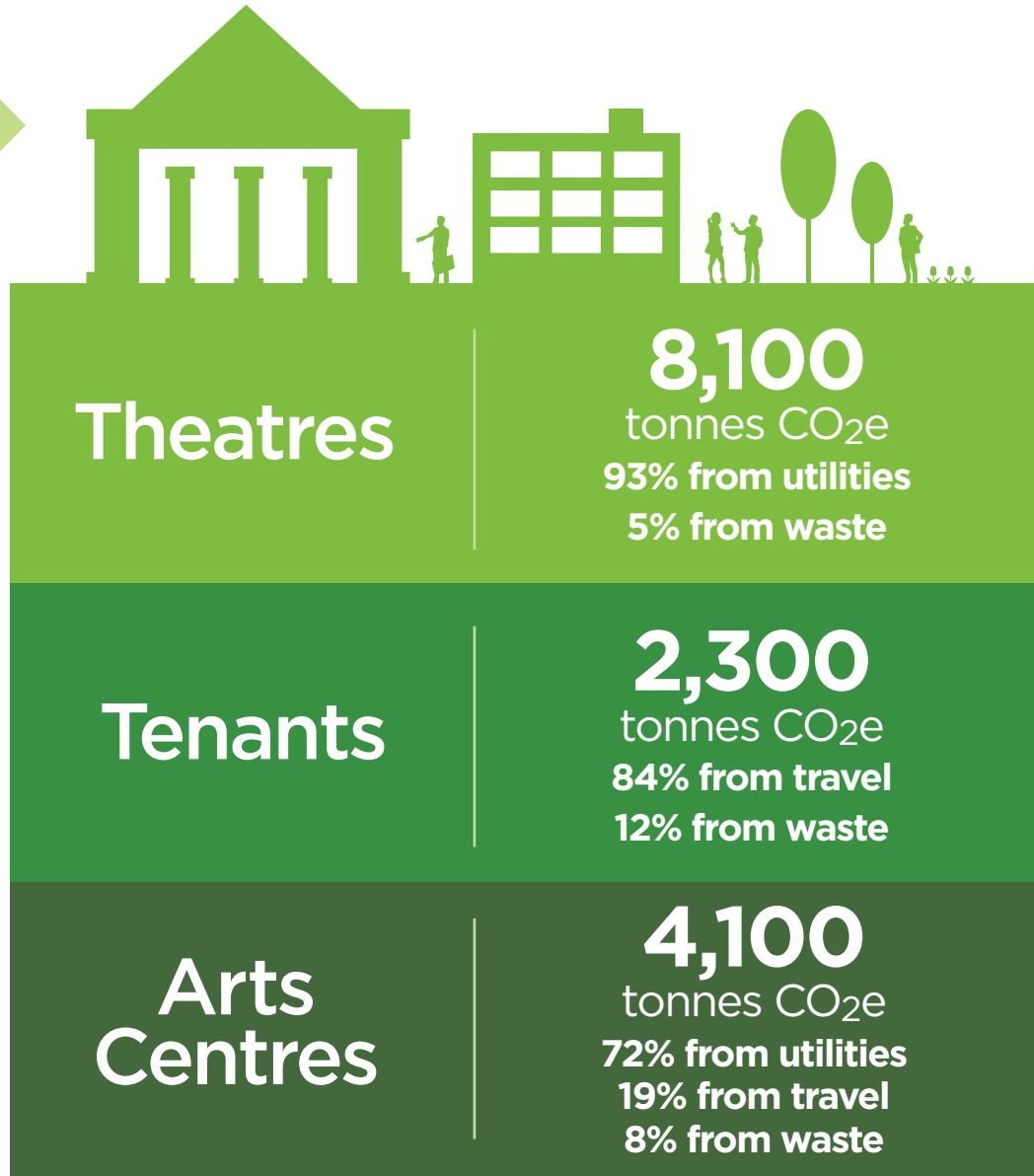
Arts Centres



AREAS OF REPORTING

- floor area
- electricity
- gas
- oil
- LPG
- other fuel
- water
- waste recycling
- waste to landfill
- travel

AVERAGE ANNUAL CARBON FOOTPRINT FOR EACH REPORTING CATEGORY



TOTAL EMISSIONS REPORTED BY CULTURAL ORGANISATIONS

14,500 Tonnes CO₂e

Up from 8,000 Tonnes reported in 2014–15.

Higher levels of engagement have seen increases in emissions reported for the whole sector. **The picture is getting clearer.**



The 3 years from 2014 to 2016 has seen a 2-fold **increase** in environmental engagement within the cultural sector

Executive Summary

- a) In 2016 it was mandatory for the first time for Regularly Funded Organisations to include carbon emissions in their annual returns to Creative Scotland for the year 2015–16. This resulted in 117 organisations providing data. This was significantly more than the 90 which reported for the year 2014–15.
- b) The environmental section of the annual return was in the form of a spreadsheet designed by Creative Carbon Scotland. For ease of use, emissions were calculated automatically based on data entered for usage of fuels, water and waste. Travel data were entered as emissions for each mode (bus, train, plane etc.). All arts, screen and creative industries organisations based in Scotland have free access to **claimexpenses.com** which produces a summary report of annual travel emissions which is suitable for this report.
- c) As in previous years, if respondents did not have access to the full year's information they were encouraged to estimate annual data (and indicate this on the form).
- d) The quality of environmental reporting to Creative Scotland is improving year on year. More organisations have submitted data and more of the data are actual measurements rather than estimates.
- e) The reported footprint of Theatres (larger buildings with auditoria) has increased significantly and now dominates the total of reported emissions.
- f) Calculated metrics for utility use can be used to help those who are running buildings to assess whether the performance of their building could be improved.
- g) Travel reporting by Theatres is lower than expected as they normally have relatively large numbers of employees and further work is needed to understand if this reflects the difficulties of gathering data or the way the organisations operate.
- h) Many Tenants (smaller companies operating from a rented office) did not report any emissions for utilities, almost certainly leading to an understatement of utilities emissions from the sector.

1 Introduction

1.1 Background

Awareness of problems relating to Climate Change is growing rapidly among the general population and the Scotland's arts, screen and creative industries are no exception. Creative Carbon Scotland has held many conversations with those who are currently working in the sector: in training sessions, in meetings, as part of the Green Arts Initiative (GAI) work, at our annual GAI conference, providing access to **claimexpenses.com** for travel recording or providing specific advice on sustainable initiatives for individual organisations.

In line with the Scottish Government's commitment to address climate change and reduce Scotland's carbon footprint, all Creative Scotland Regular Funded Organisations (RFOs) are required to submit an annual statistical return which includes an environmental report. Creative Carbon Scotland conducted an intensive program between January and September 2015 of workshops and one-to-one meetings to support the RFOs with their carbon reporting. These were supplemented by a number of refresher workshops and meetings in Spring and Autumn of 2016. The work to gather data and increase carbon literacy is providing the groundwork and knowledge which is vital for planning future carbon emissions reductions.

In September 2016, 117 arts, screen and creative industries organisations provided mandatory carbon emissions data for the first time in their annual return to Creative Scotland for 2015-16. This was significantly more than the 90 which reported for the period 2014-15.

The environmental section of the annual return was in the form of a spreadsheet designed by Creative Carbon Scotland.

For ease of use, emissions were calculated automatically based on data entered for usage of fuels, water and waste. Travel data were entered as emissions for each mode (bus, train, plane etc.). All arts, screen and creative organisations based in Scotland have free access to **claimexpenses.com** which is compatible with the environmental return.

As in previous years, if respondents did not have access to the full year's information they were encouraged to estimate annual data (and indicate this on the form).

Over the three years for which reports have been submitted the quality of the data provided has improved substantially, reflecting the increasing confidence and carbon literacy in the sector.

Organisations are asked to provide information on building ownership, size, utility usage, travel and waste disposal.

The number of categories reported was still incomplete with around one third of supplied data estimated and only one organisation reporting fully with actual data on all categories. However, the increase in the amount of data provided has resulted in the total reported footprint growing by around 70% year on year. This is standard with a new carbon reporting regime and there is potential for this to continue to increase slightly in future years as organisations report more fully.

1.2 Categorising organisations

It is difficult to define a typical arts, screen and creative industry organisation in Scotland in terms of carbon emissions. In addition, for individual organisations, activities and consequent emissions are expected to be variable year to year so more can be learned from looking at the sector as a whole or as groups within the sector. As with previous years¹, organisations were split into 3 broad types:

Theatres: The performing arts organisation runs a building containing an auditorium, usually fairly large, and produces and/or receives productions.

Arts Centres: The organisation runs a building which could be within a range of sizes where auditorium, studio space and display space are often accommodated together with space for community events.

Tenants: The organisations may only have a very small space to accommodate an office for a small number of people. While a few own this space, most are tenants. Almost all artistic activity takes place in other spaces, very often as part of a tour.

Table 1: Summary of emissions reporting by the arts, screen and creative industries for 2015–16

	Theatres (17)	Arts Centres (34)	Tenants (66)
Comment	100% of Theatres reported on their electricity use and waste emissions and 90% provided data on water and travel emissions	Electricity, waste and travel were reported on by over 80%	Waste was reported on by 78% and travel 95%. Tenants are much less likely to pay for utilities and reporting drops to around 50%
Actual data provided	73% of data is actual (as opposed to estimated)	64% of data is actual	46% of data is actual
Total annual footprint	8,100 tonnes of CO ₂ e	4,100 tonnes of CO ₂ e	2,300 tonnes of CO ₂ e
Average annual footprint	480 tonnes of CO ₂ e	120 tonnes of CO ₂ e	35 tonnes of CO ₂ e
Reduction recommendation	Reduce utility use which makes up around 90% of reported emissions	Reduce utility use which makes up around 70% of reported emissions	Reduce travel emissions which make up around 80% of reported emissions

Since the data are incomplete this analysis is not able to produce an accurate total footprint for the sector but can provide an insight into the main sources of emissions. Almost all organisations reported on at least one category but only one organisation reported fully with actual recorded data on all their emissions sources.

The completeness of the 2015–16 data reported is still mixed but compared with 2014–15 it is both more complete and more accurate. The number of data reports has increased by 30% from year to year and utilities and travel reports are 70% actual data compared with about 60% in the previous year. Waste and recycling was largely estimated for all categories of organisation. Some rudimentary metrics were calculated on annual utility use per floor area. For each utility, the values were broadly similar between all three groups: electricity (130–160kWh/m²), gas (170–190 kWh/m²), water (0.7–2.3 m³/m²).

¹ <http://www.creativecarbonscotland.com/wp-content/uploads/2014/12/Voluntary-Carbon-Reporting-2014-15.pdf>

2 Reporting from the sector

2.1 What can we learn from the returns?

- What the typical carbon footprints are for different types of arts organisation
- We can develop benchmarks to enable organisations to assess their performance
- What the major emissions sources are for organisations' activities
- What the main areas are where reductions in emissions might therefore be achievable.

2.2 Understanding who pays the bills

Not everyone pays for utilities directly. Bills for utilities, water and waste are often paid by landlords or local authorities. Very few organisations own the building they work from and utility bills are often included in the rent. This makes it more difficult to report on utility use for Tenants.

Table 2: Ownership and bill payers

		Number of organisations who pay bills			
	Number which own the building	Energy	Water	Landfill	Recycling
Theatres (17)	7	16	16	15	16
Arts Centres (34)	15	30	26	21	24
Tenants (66)	5	14	15	12	16

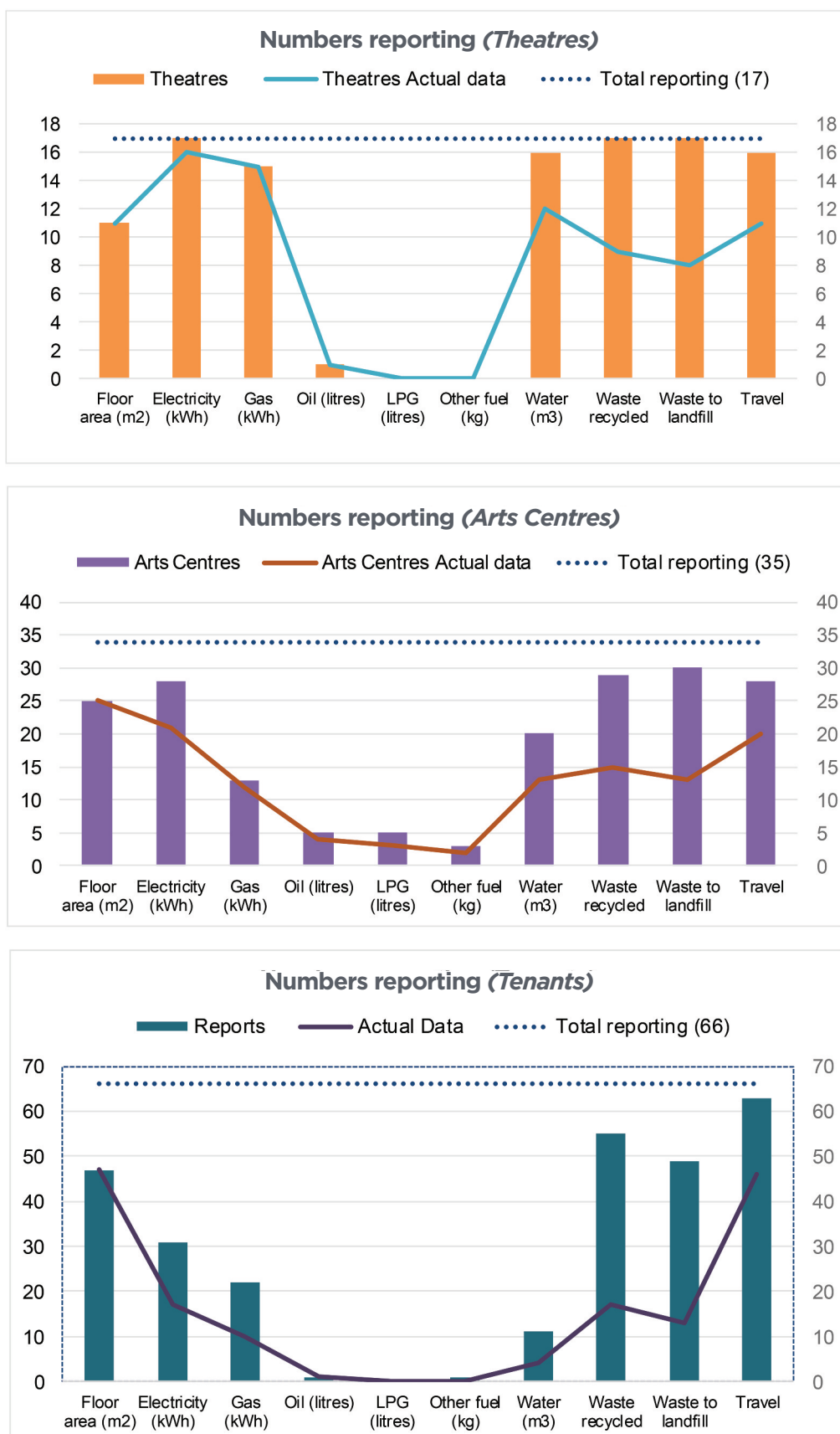
2.3 Level of reporting

Out of the 117 organisations which submitted an annual return to Creative Scotland, the number of organisations reporting either estimated or actual data is shown for the three types of organisation.

Table 3: Numbers of Actual and Estimated data reports

	Theatres (17)		Arts Centres (34)		Tenants (66)		Total (117)	
	Estimated data	Actual data	Estimated data	Actual data	Estimated data	Actual data	Estimated data	Actual data
Floor area	0	11	0	25	0	47	0	83
Electricity	1	16	7	21	14	17	22	54
Gas	0	15	1	12	12	10	13	37
Oil	0	1	1	4	0	1	1	6
LPG	0	0	2	3	0	0	2	3
Other fuel	0	0	1	2	1	0	2	2
Water	4	12	7	13	7	4	18	29
Waste recycled	8	9	14	15	38	17	60	41
Waste to landfill	9	8	17	13	36	13	62	34
Travel	5	11	8	20	17	46	30	77

Figure 1: Accuracy of data reports



2.4 The main trends on reporting from the overall reports

Travel is the most frequently reported category with the majority reporting actual data.

This is likely to reflect the growing use of claim expenses as a reliable recording tool. Travel is a difficult category and where estimates have been provided they may be less reliable.

Waste is reported almost as much as travel, with most of the reports being estimates.

Although this is improving not all waste contractors provide useful reports. However most organisations are aware of volumes of waste and were able to make good estimates.

Utilities (fuel/water use) is provided as actual data in the majority of reports

Electricity and gas reporting are both above 70% in terms of actual data and water reporting is not far behind with 60% of data provided being actuals.

Most Theatres pay their own bills for waste and utilities

Almost all Theatres were able to report on waste and utilities (gas, electricity and water) with 75% actual data. Travel reporting was lower but again was mostly actual data.

For Arts Centres, responsibility for payment of bills was mixed

There is a wide range of use and ownership and many are in rural areas. Gas is used as the heating fuel where available but biomass, electric, LPG and oil heating are used. Electricity data was 75% actual data and gas data was over 90% actual.

Tenants are the largest group but are much less likely to pay for utilities or waste

This is reflected in the lower percentage of reporting on utilities. Less than half reported on electricity use and less than 15% reported water use but 95% provided data on travel which is their largest source of emissions

3 Emissions from the sector – reported totals, averages and footprints

3.1 Range, averages and total emissions over all organisation types

The emissions calculated from reports by all organisations were totalled by sector and across all sectors. This provides a perspective on the ‘carbon intensity’ of organisations working in the arts, screen and creative industries and allows a rudimentary comparison with other business sectors. The figures reported include actual recorded data as well as estimates but will still significantly understate the actual totals as most reporting organisations will have omitted at least one major category.

Figure 2: Emissions by organisation type

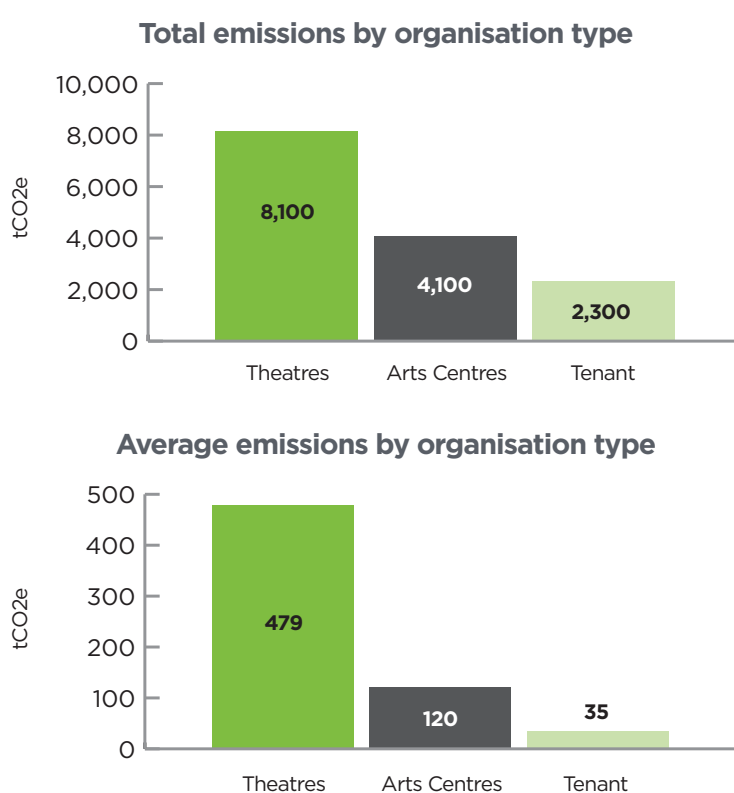


Table 4: Total sector carbon emissions

	Range of annual total emissions reported (tonnes CO ₂ e)	Average annual total emissions reported (tonnes CO ₂ e)	Annual total (tonnes CO ₂ e)
Theatres (17)	111.2-1686	479	8,100
Arts Centres (35)	0.2-847.2	120	4,100
Tenants (66)	0.008-643.36	35	2,300
All organisations	n/a	n/a	14,500

3.2 Reported total emissions broken down by source

Table 5: Total emissions by source

Total tCO ₂ e by source	Fuel/Water	Waste	Travel	Total Emissions
Theatres	7,535	400	207	8,142
Arts Centres	2,939	348	783	4,070
Tenant	344	28	1,932	2,304

From Table 5 we can take the emissions reported for each organisation category and build a carbon footprint, identifying the relative sizes of different emissions sources (utilities, waste, travel) for each group of organisations. This allows us to identify the best targets for making emissions reductions. Emissions contributions from each source are represented as percentages of the total footprint.

Figure 3: Carbon footprint breakdown for all sectors

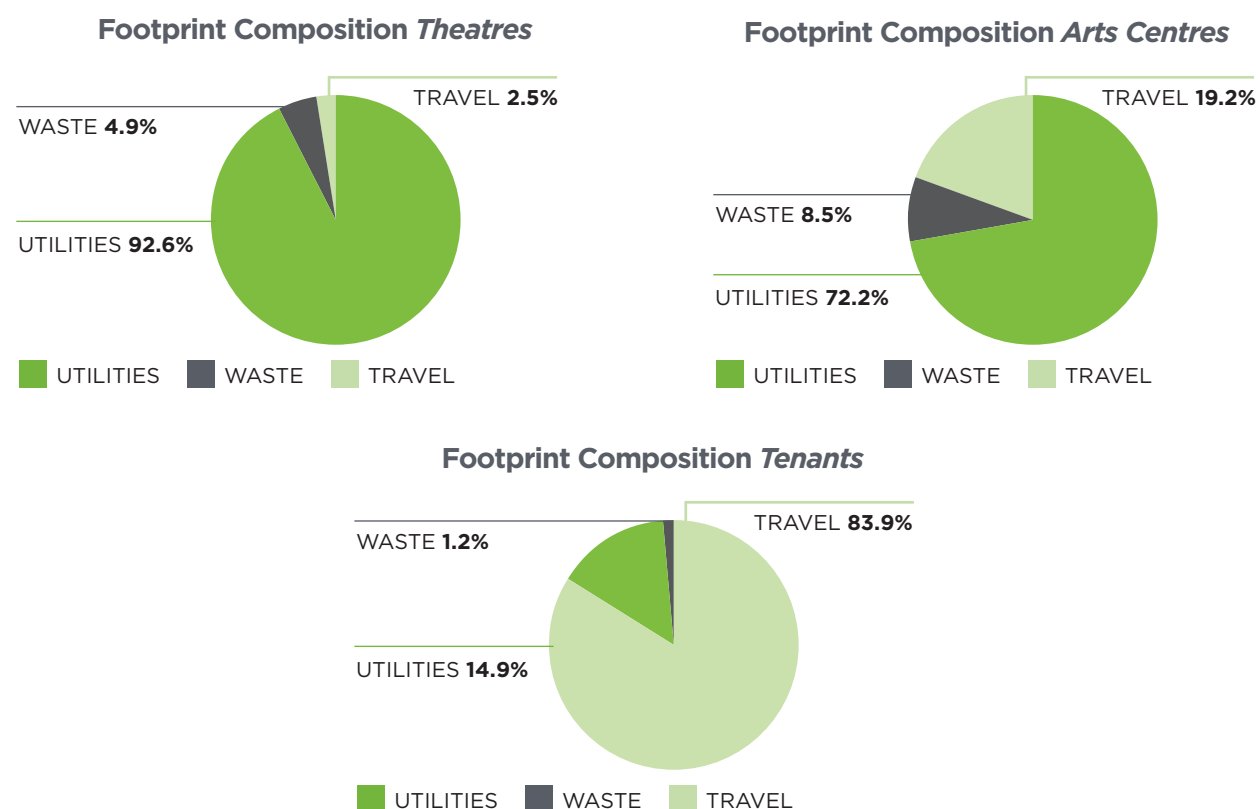


Table 6: Average of reported emissions

Average tCO ₂ e by source	Fuel/Water	Waste	Travel
Theatres	443.2	23.5	12.9
Arts Centres	105.0	11.6	28.0
Tenant	10.7	0.5	30.7

Note: looking at average annual footprints for the sectors as a whole can provide some insight but these figures do not provide a measure of overall sector emissions.

3.3 Understanding how emissions are reported by individual organisations

Although we have been able to calculate a useful global footprint by combining data from groups of organisation types, the same analysis is more problematic when looking at an individual organisation.

In some organisations, data have not been provided for all categories, therefore the reported categories take up a larger percentage of the organisation footprint than would be expected.

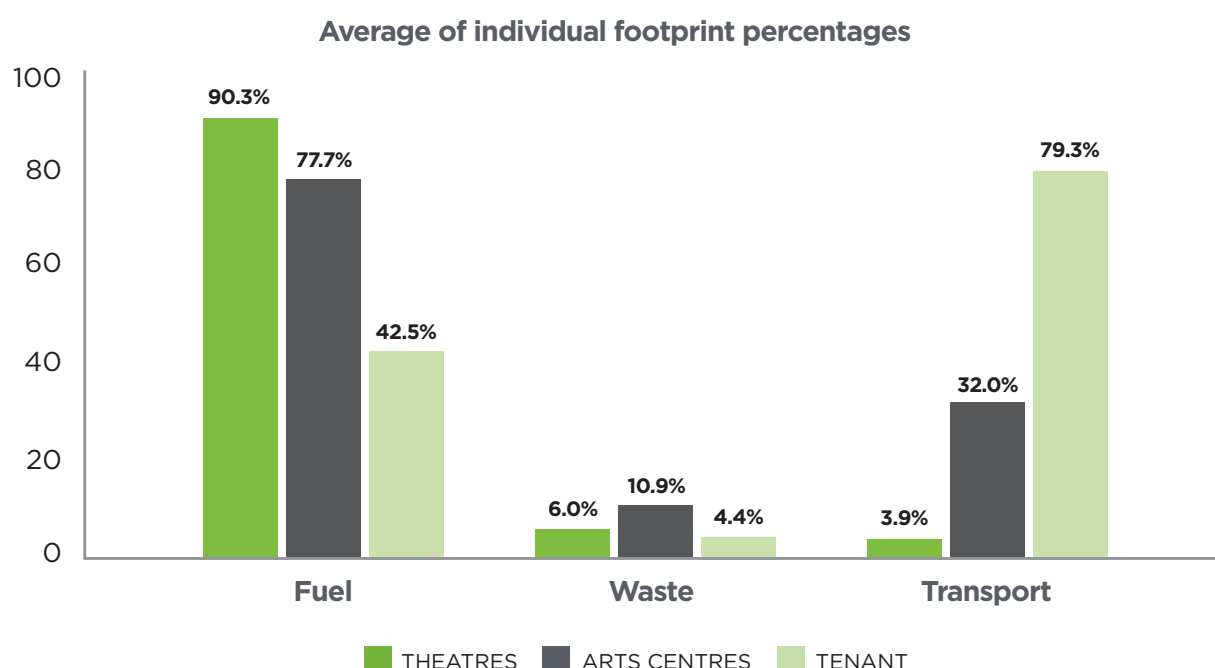
We calculated the carbon footprint for each organisation which submitted a report. As very few organisations have reported on all categories, calculated footprints are often missing significant contributions. It is also likely that some categories have been underestimated, most probably travel as this is the most difficult to capture. To build a more detailed picture of individuals, we calculated average footprint percentages from the individual footprints for the most significant sources of emissions

Table 7: Average of individual footprint percentages

Category of Organisation (Number in sector)	Theatres (17)	Arts Centres (35)	Tenants (66)
Average utilities % of footprint (over number which reported utilities)	90.34% (17)	77.69% (28)	42.54% (32)
Average waste % of footprint (over number which reported waste)	5.96% (17)	10.92% (30)	4.44% (55)
Average travel % of footprint (over number reporting travel)	3.93% (16)	32.04% (28)	79.28% (63)

Note: as not all organisation reported on all categories, sum of average percentages would not be expected to equate to 100%.

Figure 4: Average of individual footprint percentages



This picture is similar to the carbon footprint average for each sector shown in *Figure 3*, although differences do emerge. When looking at averages of individual organisations, travel is more significant for the Arts Centres and utilities are more significant for Tenants which reported on these categories.

This analysis shows that for all sectors waste disposal produces a relatively small contribution to the overall carbon footprint of organisations. This can often be the focus of many emissions reduction efforts and it is useful to highlight the areas which will bring a better return on time and effort and cost invested. *Figure 4* uses the data to illustrate which emissions sources have most impact in a typical organisation and provides a focus for reduction efforts for individual organisations.

For Theatres and Arts Centres, utilities contribute the majority of emissions they reported. Although this may be partly as a result of the relatively low rates of travel data reported for these sectors, this initial evidence indicates that the best opportunity for emissions savings is likely to be from reduced utility use.

For Tenants the picture is more complex with organisations reporting either utilities or travel but rarely both, leading to significant under reporting overall. This initial evidence indicates that the best opportunities for emissions savings for most Tenants may come from reducing travel emissions.

This initial evidence indicates that the best opportunity for emissions savings is likely to be from reduced utility use



4 Developing baselines and metrics

Many organisations have requested information on how much fuel and water they should expect to use. To provide this and to allow a comparison with industry standards, rudimentary baselines and metrics have been calculated to provide an indication of the performance of the organisations which provided utilities data.

Table 8: Usage metrics

	Theatres	Arts Centres	Tenants
Average floor area (m2)	4,169	1,224	438
Average electricity usage (kWh)	555,190	136,033	15,543
Average electricity (kWh/m2)	140	131	157
Average gas usage (kWh)	1,128,734	259,727	22,157
Average gas (kWh/m2)	193	181	172
Average oil (litres)	5,680	2,060	5,843
Average oil (litres/m2)	1	2	13
Average water use (m3)	5,510	1,993	193
Average water (m3/m2)	1.3	1.6	0.4
Average utilities footprint (tonnes CO ₂ -e)	479	120	35
Utilities footprint (tonnes CO ₂ -e/m2)	0.11	0.10	0.08

These are based on small incomplete samples so can only provide an indication rather than an accurate picture of the sector as a whole.

4.1 Metrics for utility use

We found that although Theatres and Arts Centres have a much larger carbon footprint overall, when looked at in terms of floor area there was less of a difference. For each utility the values were broadly similar between all three groups:

- > electricity (130-160kWh/m2),
- > gas (170-200 kWh/m2),
- > water (0.4-1.6 m3/m2).

We compared these values with information contained in a recent report issued by Julie's Bicycle. Although the sectors defined differed somewhat, the calculated metrics for gas and electricity were also in line with the values reported by CIBSE and Julie's Bicycle¹ for performing arts venues: electricity (101-150 kWh/m2), gas (139-420 kWh/m2).

5 Conclusions

- 1 The quality of environmental reporting to Creative Scotland is improving year on year. More organisations have submitted data and more of the data are actual measurements rather than estimates.
- 2 A significantly larger number of Theatres supplied emissions figures and they included more categories this year leading to a larger footprint for this group. The total of reported emissions is now dominated by utilities usage in Theatres.
- 3 Calculated metrics for utility use can be used to help those who are running buildings to assess whether the performance of their building could be improved.
- 4 Travel reporting by Theatres is lower than expected as they normally have relatively large numbers of employees and further work is needed to understand if this reflects the difficulties of gathering data or the way the organisations operate.
- 5 Utilities reporting rates by Tenants is relatively low leading to an underestimate of the total emissions from the sector. This could be enhanced by encouraging Tenants to make estimates of their office energy use (the **Tenant Energy Toolbox** can be used for this purpose).

5.1 Statistics

Table 9: 3 year summary of reporting from 2013–2016

	2015 – 16	2014 – 15	2013 – 14
No. of organisations which submitted an annual return	117	125	54 (18 fully)
No. of RFOs submitting environmental data	117	90	45
No. which own their building	27	23	n/a
Those which are tenants	66	96	n/a
Those which pay for utilities	60	61	n/a
Those which pay for water	57	52	n/a
Those which pay for waste	48	44	n/a
Those which pay for recycling	56	52	n/a
Those which reported utilities	77 (of which 23 estimated)	54 (of which 15 estimated)	Approx 40
Those which reported water	47 (of which 18 estimated)	41 (of which 14 estimated)	Approx 20
Those which reported travel	107 (of which 30 estimated)	55 (of which 30 estimated)	Approx. 20
Those which reported landfill	96 (of which 62 estimated)	75 (of which 51 estimated)	Approx. 20
Those which reported recycling	101 (of which 60 estimated)	92 (of which 47 estimated)	Approx. 20
No. of reportees with environmental policies	no data collected	80	25
Maximum reported footprint	1,685,709 kg CO ₂ e	800,000kg CO ₂ e	n/a
Average reported footprint	124,066 kg CO ₂ e	80,000 kg CO ₂ e	n/a
No. of workshop sessions held by CCS	12	25	6
No. of workshop attendees	43	150	50
No. of organisations at workshop sessions	43	70	Approx. 30
Average Satisfaction rating from workshop attendees (1 – 5)	4.6	4.3	n/a
One to one meetings held	10	130	10
‘Extremely helpful’ rating for meetings	n/a	69%	n/a
Miles travelled by CCS to meetings & workshops	1,000	5,000	n/a
Active claimexpenses accounts	110	83	11

5.2 References

- 1 Sustaining Great Art Environmental Report 2012-2015 Results and Highlights
(http://www.artscouncil.org.uk/sites/default/files/download-file/Sustaining_Great_Art_Report_2012_15.pdf)



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