

An Introduction to Carbon Management

Audio transcript of video tutorial

Video tutorial introducing carbon management principles and methods featuring Caro Overy, Creative Carbon Scotland's Carbon Management Planning Officer.

00:00 Introduction

Hello and welcome to this introduction to carbon management. I'm Caro and I'm Creative Carbon Scotland's Carbon Management Planning Officer.

The aim of this tutorial is to give you a bit of background on climate change and carbon management and to leave you feeling a bit more prepared to create a carbon management plan for your organisation. Please do also take a look at our online tools and resources that are created to support you with this and don't hesitate to contact me if you have any follow up questions.

There is an accompanying transcript of what I'm saying in this video that will be available to download if you would prefer to access the content in this way.

First, I'm going to talk a little about the basics of climate change and why carbon management is important, then I'll cover the practical essentials of making it happen for your organisation. I'll touch on the bigger picture of the cultural carbon story, and I'll leave you with some things to consider into the future

00:34 Climate Change Basics

Globally, we are living in a time of climate emergency. Global temperatures are rising and while there is some variation from natural causes, for the most part recent climate change is anthropogenic, which means it's caused by humans, mostly through the burning of fossil fuels. Emissions from these processes gather in the Earth's atmosphere as greenhouse gases which then reflect heat from the sun back down to Earth, gradually increasing the temperature. The greenhouse gas we hear about the most is carbon dioxide. Others include methane, nitrous oxide and some rarer refrigerant gases. We usually talk about greenhouse gases as carbon dioxide equivalent because carbon dioxide is the most significant among them.

In 2019, the average temperature was second only to that of 2016 and continued the planet's long-term warming trend; the past five years have been the warmest of the last 140 years.

The impacts of climate change include the disruption of ecosystems we and other species rely on for food production and as a place to live, sea level rise, ocean acidification, the decline of glaciers and sea ice, and an increase in unpredictable weather events. In Scotland, we mainly face increased flooding, sea level rise, and an increase in unpredictable weather events.

On a human level, it's also important to realise that people with less resources both globally and locally are likely to disproportionately suffer from the effects of climate change because

the places they live in are more severely affected and they have less resources with which to counter the problems.

All of this likely explains why countries around the world have declared a climate emergency! Here you can see a quote from the UK Committee on Climate Change. While the figure is startling, the fact that national governments recognise the severity of climate change is positive. It gives decision makers, businesses and communities responsibility and agency to take action.

Culture allows us to imagine, feel and think together, which is absolutely essential to bring about the transformational change needed to prevent extreme climate change and to adapt to a new climate. There is more to the wider picture of the cultural contribution to our climate story, and I'll touch on this towards the end, but a good practical starting point is carbon management.

02:49 Practical Essentials of Carbon Management

Carbon Management has two fundamental principles. The first is understanding your emissions, and the second is planning to reduce them. When reducing, we know that ultimately we're all aiming for zero. When I started working in the environmental sector ten years ago, the targets felt a long way off, but I now realise that I will likely still be working at the time we have committed to achieve net zero, which for Scotland is 2045. So for me and for many others among you, it's worth thinking about now!

To understand your emissions, you first need to identify where they come from. As I mentioned before, most emissions are from the burning of fossil fuels, so let's think about where this happens in our lives. It happens in the electricity we use, the gas or other fuels we might use for heating, the fuel in the vehicles we use to get around and move the things we need, and how we deal with our waste. All of these things come together to create our carbon footprint.

We generally think about the emissions of an organisation coming from three key sources: Energy, Travel and Waste.

There are emissions embedded in everything we use, hence why I've included materials on this list. However, it's in brackets because understanding is still growing about how to count these so for this practical essentials introduction, we're going to look at energy, travel, and waste.

For each emissions source, I'll tell you a bit about how to calculate your emissions from that source, the likely impact, and some strategies for reduction that you could consider when creating your carbon management plan.

Before we get into those details, just a little note about calculating carbon and emission factors. These are what all of our downloadable carbon management tools are based on. Emission factors are the numbers that turn your raw units of energy use, fuel or waste disposal into kgCO₂e. For example, for electricity, we take the number of kWh used over a

certain time period (usually a year) and multiply it by 0.23, which gives us the amount of carbon dioxide equivalent associated with that energy use.

Emission factors are published each year by the UK Government and they do change as our infrastructure changes. This also means they're different in different countries.

For example, let's take energy. For some years, the proportion of electricity in the UK grid that is generated using renewables has been increasing, which means the emission factor for electricity has reduced. This means that when we use 1kWh of electricity in 2020 we're emitting 0.23kgCO₂e whereas the same amount of electricity used in 2018 would have produced 0.28kgCO₂e.

05:59 Energy

Now moving on to our different emission sources, let's begin with energy. This covers lighting, heating, equipment, anything that uses power, whether that's electricity, gas, or other fuel. For an organisation, energy bills will usually give you a figure of usage in kWh. This is a good starting point for understanding your emissions.

However, it's also good to get a more practical idea, so I would suggest getting to know where your electricity and gas meters are or measuring any other fuels you might use. If it's possible to do so, we'd recommend taking monthly or quarterly meter readings to better understand the flow of your energy use. Especially in cultural organisations, there will always be rises and falls according to your programme, and it's worth keeping an eye on this. Tracking in this way will give you a more nuanced understanding of your organisation's energy consumption than bills alone and can help you identify things you might do differently to reduce energy use. You can use our Carbon Management Planning tool to record your energy use.

If you don't have access to your energy bills or your meters, we recommend using our Tenant Energy Toolbox, which will help you calculate an estimate of your energy use based on the lighting, heating and equipment you use in your work.

In terms of reducing emissions from energy, first look to any common sense reductions and then to anything requiring investment. Are there devices left on that don't need to be? Can you improve heating and lighting efficiency through planning space use differently? Is it clear to any folk using your spaces how to turn things on and off and what your expectations are? Beyond these behaviour measures, you could look at investing in energy efficiency such as LED lighting, newer equipment, better insulation, and boiler replacement. If you operate from your own building, Zero Waste Scotland are able to offer free advisory audits to most businesses to give you specific information about what's possible in your building.

If you don't own the building you work in, open up the conversation with your landlord. Explain why carbon management is important to your organisation and suggest working together with them on it. Many organisations of all sizes now have carbon reporting requirements and there's a good level of awareness about climate change, so you may not be the first to mention it. The same goes for use of venues for events. You don't need to

report on those emissions because they're not part of your business footprint, but you may still have a positive impact overall by asking venue managers about their energy efficiency and what you can do to support it.

08:23 Travel

Travel is in many ways the most complex challenge for cultural organisations when it comes to carbon. We work within a sector that expects and benefits from international connections and collaborations. For many organisations, especially those who either don't own their premises or don't use regular premises, travel will form the majority of their carbon footprint. This is also the case for individual artists. We encourage organisations to consider using [Claimexpenses.com](https://claimexpenses.com) to measure their emissions from travel as it's an easy way to manage your data all in one place. We subsidise the annual subscription fee to keep costs low and the system is updated annually with new emission factors as they are released.

When looking for reductions in travel emissions, there are some rules of thumb to consider, but different organisations and individuals will always have new and creative ways to do things, so this isn't a restricted list!

Firstly, do take the time to consider whether you need to travel. As we've all seen over the past few months, while there's no substitute for live performance and viewing, there can be effective ways of connecting digitally and online events can sometimes be more accessible to participants further afield. We've definitely found that with our Green Arts meet-ups and Green Teases.

Secondly, if you determine the travel is necessary, consider what we call 'mode shift' – if you're making a journey, can you get there in a way that's lower carbon? In general, overland travel is far lower carbon than air travel, and any form of collective travel (whether that's public transport or hired vehicles), works out lower carbon than solo car journeys. Take a look at this brief carbon calculation of a journey between Edinburgh and Glasgow – you can literally use a seventh of the carbon by taking the train instead of driving. If there are more of you going and you use an electric vehicle, driving makes more sense. Of course there are always other factors involved when you're taking equipment or instruments, or public transport simply isn't practical for where you're trying to get to.

Next, consider the knock-on effects of any mode shifts and how you can work with them. Some journeys may cost more financially, some journeys may take longer and therefore require you to pay artists and staff more for their time. On the positive side, lighter travel might help with building local connections in the place you're going through working with cultural organisations there to borrow or hire equipment. You might be able to get to more places with a lighter tour using a van rather than an HGV, increasing the overall impact of a journey.

You might also want to think about a carbon budget for travel. You can set a budget by measuring your emissions over a set time period to give you an idea of what 'normal' looks

like, then organising your travel so that your emissions stay roughly around there, looking for reductions where possible.

To take a second to zoom back out to a wider context, while travel is a significant part of the cultural carbon footprint, that overall cultural carbon footprint is relatively small compared with some other sectors, and international connection is part of a sustainable and fair future. Lots of artists are now thinking about the reality of climate change and critically examining their carbon footprint in creative partnership with environmental organisations and academics. For example, Massive Attack are working with the Tyndall Centre for Climate Change Research. We're also recognising and starting to take responsibility for the broader footprint of audience travel, which for larger events and festivals will often be larger than the travel emissions of the performers getting there. We'll talk more about this wider influence later on. The central message is that good carbon management is measurable, realistic, and part of the process of making high quality cultural work.

11:55 Waste

You can calculate the carbon footprint of your waste by finding how much waste you dispose of either from your contractor or from estimating (or counting!) the number of bags of different types of waste you dispose of. I recommend using our Carbon Management Planning tool to help with this.

You might notice from the figures here that carbon emissions from waste are relatively low compared with the likely quantities of our production. In a typical cultural organisation, building based or an organisation without premises, emissions from waste usually represent the smallest part of the footprint. However, this is not to dismiss it! Waste is probably the most visible source of emissions to artists, audiences and staff, and in many cases can be dealt with very creatively. It also has a cultural significance that goes beyond the carbon emissions generated – we've all heard the term 'throwaway culture', for example. Over the past few years you may have heard about the Circular Economy, which is a conceptual shift from systems that work in a linear fashion from extraction to production to disposal, to systems that reintegrate what would otherwise be thought of as waste and aim for circularity.

When considering emissions reduction from waste, there are some clear and easy wins around ensuring recycling is in place and as little waste is sent to landfill as possible. You can see from the numbers above that sending one bin bag full of waste to landfill has a carbon footprint 4 times bigger than sending the same quantity of waste to recycling.

You'll see from the waste hierarchy diagram that there are a number of stages to consider before you even get to any sort of disposal. Prevention is the first port of call – is the item needed? Can single use items be replaced with reusable items? Can items be shared? Can waste be designed out of processes and behaviour? It can be a challenge to count the carbon involved in these savings, but the wider environmental and cultural benefits are too great not to consider them.

13:44 Carbon Management Planning

Here's a diagram that should help to understand the process of bringing all those elements together into a carbon management plan. Since 2018 in working with Creative Scotland RFOs and more latterly with organisations receiving cultural funding from City of Edinburgh Council, we have asked organisations to specify a carbon reduction project each year. However, for each organisation that project might look entirely different, and some organisations might be in a position to do more than one thing while others might be phasing a larger project over a number of years. The general rules are that you should aim for a reduction of around 8-10% of your footprint per year (although bearing in mind we're aiming for zero by 2045) and that you should be able to measure what you achieve. And if something you do doesn't work, reflect on why that was and do something different. As with any type of management, monitoring and reflection are important.

14:37 Culture and Carbon

Since 2015, Creative Scotland RFOs have been reporting carbon emissions, and since 2018 they have been creating and monitoring carbon management plans. Not only does this mean that there's some very strong environmental leadership across the Scottish arts community, it also means we are able to get a picture of what cultural carbon footprints look like.

The chart below shows you how emissions from different sources have changed among the 121 organisations that report. You'll notice that emissions from electricity have fallen. This is for a good part down to the energy efficiency efforts of the organisations and partly due the increase in renewables in the UK electric grid. You'll also notice the apparent stubbornness of emissions from travel. As mentioned earlier, travel is likely our most complex challenge in culture, so naturally it reflects here!

Here I've put some typical carbon footprints from 2018-19 from cultural organisations that work in buildings. Remember when you're looking at these that piecharts usefully show the proportion of emissions from each source but don't tell us anything useful about quantity. You'll notice that energy is reasonably significant, travel is quite significant for one organisation, and waste seems to be more of a challenge for another, although is consistently small compared with the other emissions sources. I have put the total footprint of each organisation next to the piechart just to give you an idea of the range of footprints, which as you can see is quite large! For context, the average footprint of a person living in the UK from their personal life is 10 tonnes

Here are some carbon footprint piecharts for organisations who don't run a building. They are still able to estimate their emissions from energy, but it shows up slightly smaller in the footprint. Their travel is proportionately larger. Maybe they went on tour that year or maybe their energy footprint is just very low. Their waste footprint is also small.

The logical thing to do when creating a carbon management plan is to work to reduce the emissions source that represents the largest section of your organisation's carbon footprint. This isn't always possible depending on other factors, especially if your organisation doesn't

own the building, or investment in energy efficiency simply isn't feasible. However, don't be disheartened!

This is where the story goes beyond the direct carbon footprint of your organisation. Carbon management has traditionally been designed for organisations and operations that extract, manufacture, and dispose of physical goods. For a lot of the cultural sector, it just doesn't quite work like that. For this reason, I want to talk about the diagram below. It's based on a leadership and management concept where you think about business decisions that are within your direct control, but recognise that there are decisions you can influence outwith that inner circle, and even beyond that there are decisions that you are concerned about. I'd encourage you to think of your organisation's emissions in this way.

That inner circle is your direct carbon footprint. Those are the emissions from energy bills you pay directly, transport you pay for staff, artists, volunteers, and waste you dispose of directly. The carbon footprints I showed you in the previous slides sit in this circle of direct control, although there are sometimes fuzzy boundaries if you don't control the premises you work from, for example.

The next circle out is emissions that you influence but don't have direct control over and don't report on. In an immediate sense, these include audience travel where your organisation doesn't pay but you might be able to encourage your audience to make greener choices. In the wider environmental sense, this circle might also represent behaviours your programme might influence. For example, if you have a show that deals directly with environmental issues and there's a community engagement component, this could lead to participants and audience considering and reducing their own carbon footprint. While your organisation can't count the figures for this, and there are likely other factors involved – maybe they were already thinking about these issues, but to an extent your influence is at play. On an operational level, these emissions could be the emissions of another company you're working closely with on a project, or an organisation you're sharing set or props or equipment with to your mutual carbon reduction benefit. The cultural sector is uniquely thriving with connection and collaboration, and carbon management can be part of that.

The circle beyond that is there for context and is about concern. It's where international and national policy sits, and all the other factors that we care about in our carbon management. It might also include the energy available for us to use, waste contractor practices, and travel available.

In general, when creating your carbon management plan, aim for the emissions in that initial circle of control, but if those emissions are already minimised or are particularly challenging to address, look beyond to your circle of influence. I'd always encourage you to find a way to measure what you're saving, and certainly beware of double counting if you're working with other organisations, but you might discover that you're able to create more change here, which overall will be of benefit.

19:36 When we get to zero...

I hope you've found this tutorial useful. Remember there are downloadable tools and resources available on the Creative Carbon Scotland website that will also support you in creating and monitoring your organisation's carbon management plan.

I just wanted to end with a slightly wider view. Our shared zero carbon future is about more than carbon management in the way we've been talking about it today. Carbon management is obviously part of it, and the method of understanding and reducing emissions is core to good environmental practice and leadership. Beyond this, working in the cultural sector we have the advantage of what I've called our influence, whether that's through peer collaborations and connections or with audiences and participants. We also need to consider the impact that climate change will have on our work and plan for adaptation. There are some resources on the Creative Carbon Scotland website about this and we have a number of active projects relating to it because we know it will be a priority in the not too distant future.

Keeping connected in environmental practice means we continue to learn from each other. We facilitate the Green Arts Initiative and the Green Tease network to keep organisations and artists connected in their environmental ambition and work.

Please do get in touch if you'd like to find out more, whether it's a specific question about your carbon management planning or if you'd like to connect with us in a different way. We're also interested in whether you found this tutorial useful.

I hope to hear from you soon.

If you have any questions regarding the content of this tutorial or would like support with your organisation's carbon management please contact
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