

Greening Scotland's Screen Industry

How Scotland can become the leading country for environmentally sustainable film- and TV-making

A report of research by Creative Carbon Scotland for Screen Scotland

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2 Executive Summary

1. Screen Scotland commissioned Creative Carbon Scotland to *'identify appropriate means, opportunities and instruments for Screen Scotland to promote stronger mitigation of carbon emissions in the screen sector, predominantly in production.'*
This report is the first stage of this research.
2. The Climate Change (Emissions Reduction Targets) (Scotland) Bill makes clear that in the medium to longer term the Scottish Screen industry needs to work towards operating on a zero-carbon basis.
3. Despite some initial work focused on sustainability in UK film production carried out as far back as 2007 by the UK Film Council and the work of the *albert* consortium, interest is patchy and down to individual preferences rather than an overall industry engagement with the issue and sustainability in the screen production industry as a whole hasn't moved forward greatly in either the UK as a whole or in Scotland. However a recent report from the BFI and a renewed initiative by CineRegio in Europe indicate that engagement is increasing.
4. The *albert* consortium, with a directorate which includes the major players in the industry and managed by BAFTA, provides free training, carbon management tools and an accreditation system and is the main player in greening the screen industry in the UK.
5. The sustainability of film exhibition is largely covered in other projects such as Creative Scotland's RFO Carbon Management work and is therefore not the focus of this report.
6. The Scottish screen production industry is complex, open and has many freelance and small players; creative talent and technical and production workers regularly cross geographical and sectoral borders. Productions depend on other small organisations as well as external sectors to provide non-specialist services. The whole industry should therefore be considered as a system rather than a monolithic and homogeneous sector in which to bring about change.
7. Production companies are special purpose vehicles which may be funded by larger organisations and bring together bespoke groups of freelancers. They are short-lived and this can reduce accountability in relation to matters like environmental sustainability.
8. Our research into best environmental practice in the screen production industry in the UK, Europe and America indicates that there are many different schemes which share common characteristics but no clear leader or standard approach to follow. In the UK the *albert* consortium has strong institutional support from the TV companies but acknowledges that it has failed to achieve much on the film production side, and even within TV it has not succeeded in reducing emissions. A Green subgroup of the CineRegio network in Europe has recently raised its ambitions and is proposing a common approach. The Producers Guild of America's Green Production Guide doesn't fully align with European initiatives.
9. The Screen Scotland partnership approach, increased funding and development of the new studio provide an opportunity to influence larger parts of the system

described above, rather than focus on individual productions. The lack of a strong leader in the field offers the opportunity to capitalise on these advantages and develop a world-wide reputation as the greenest place to make a film with which Scotland can attract inward investment and external productions. To do this Screen Scotland will need to seek change in the whole system, rather than only the areas in which it has direct influence.

Recommendations

Our core recommendation is that Screen Scotland has the opportunity to become an international leader in sustainable screen production, mirroring Scotland's wider leadership in climate change, if it takes the best elements of the examples of good practice that we have discovered and combines them to establish itself as the **leading green screen development agency in Europe**. Its approach should align with but improve on equivalent schemes in the UK, Europe and North America, to avoid duplication and enable co-funders, co-producers and incoming producers to understand and accept standards set in Scotland.

At present the industry cannot provide sufficient trained staff or access low-carbon facilities or services to make it feasible to require high standards of environmental sustainability as a condition of funding, but the intention to do so by a particular date, supported by a comprehensive training programme and the ongoing development of the low carbon facilities and services, should be announced.

In the meantime, funding schemes should ask questions about sustainable practices and prioritise those productions that are demonstrating good practice

If adopted the approach we are recommending would fit with each of Screen Scotland's main funding schemes:

- **Film Development & Production Fund** Productions funded through this scheme would be supported to meet high environmental standards
- **Broadcast Content Fund** Alignment with the major broadcasters and producers, would enable them to meet their own environmental standards easily in Scotland
- **Production Growth Fund** Incoming producers would have an incentive to work in Scotland as the 'greenest place to make a film in the world' as they would be able to deliver the environmental standards demanded by major studios, broadcasters and distributors easily, with the trained staff, practices, facilities etc in place

Our detailed recommendations are therefore as follows:

Screen Scotland

- a. Screen Scotland should offer a strong lead to companies and individuals, making clear that its aim is for Scotland to develop a zero-carbon screen industry, and that it will support, encourage, enable and in due course require actions to achieve that aim.
- b. Accordingly, Screen Scotland should urgently develop its own environmental policy, strategy and action plan and train its own staff to ensure that this is applied internally and across its funding schemes and the projects it runs and supports.

- c. The Screen Commission or another group should develop a Green Film Charter with which local Film Offices should be encouraged to align their own Codes of Practice and Film Charters.
- d. Screen Scotland should use its influence and the leverage that comes from its funding of the new Leith Studio to ensure that the studio itself is operating to high environmental standards and that it encourages and enables incoming productions to work to similar standards.
- e. Screen Scotland should announce soon that it intends from a certain date to require high standards of environmental sustainability as a condition of funding, and that it will support a comprehensive training programme and the development of the low-carbon facilities and services in order to enable local and incoming productions to achieve these standards.
- f. Screen Scotland should consider introducing mandatory carbon reporting using the *albert* system for funded projects, whilst bearing in mind the challenges this presents and the training needs it would require.

Training

- h. The *albert* system for measuring, reporting and reducing production greenhouse gas emissions should be adopted as the standard set of tools for measurement and reporting by Screen Scotland, as it is well established and used by the major UK broadcasters and TV production companies.
- i. However the *albert* training is not working in Scotland and we recommend that Screen Scotland should work with BAFTA to support the development of an improved version that aligns with the existing approach but is specific to Scotland, using local examples, providing detailed and practical advice for use the next day on a production, including local low carbon service providers etc.
- j. Different versions of this '*albert*-Scotland' training should be targeted at different roles in production process, including Producers, Production Managers and Accountants, Location Managers, 1st Assistant Directors and other roles involved in the planning and budgeting of productions, as well as Heads of Department and crew members. Writers, Directors and Art Directors could also benefit from more tailored training packages of their own.
- k. Such training should aim as a priority to ensure that Producers and others recognise that *albert* is not a 'tick-box exercise' but will play an important role in making Scotland's screen industry a world leader in sustainability.
- l. Sufficient capacity should be developed in delivering '*albert*-Scotland' training so that by an agreed date Screen Scotland investment can be contingent on at least 51% of the creative and production teams and crew having gained the relevant certification.

Facilities and Services

- l. Screen Scotland should work with the facilities and service providers that support screen production, both those directly connected to the industry such as post-production houses and those whose main customers may lie outside it, such as transport and vehicle providers

Sustainability Hub

- m. In order to encourage and facilitate the above changes to the system, Screen Scotland should invest in a Screen Sustainability Hub, which is an industry-leading centre of expertise with a Screen Production Sustainability Manager who is available to support individual productions, to provide and co-ordinate '*albert*-Scotland' training, and to build the sector's expertise, knowledge and understanding of environmental sustainability.
- n. Building on the success of the Flanders Audiovisual Fund, we recommend that Screen Scotland-funded productions should work with the Screen Production Sustainability Manager to develop an environmental plan tailored to that particular production, with targets and monitoring processes.
- o. The Sustainability Hub should ideally be located at or near the new Leith Studio, and should include provision for materials re-use, re-purposing and recycling, such as the model offered by Re-Set Scotland.
- p. The Screen Sustainability Hub should work with other agents in the industry such as facilities companies and locations to ensure that sufficient low-carbon services and facilities are available to enable productions to reach the high environmental standards required by Screen Scotland funding.

3 Introduction

3.1 Background

Creative Carbon Scotland was commissioned by Screen Scotland to undertake research into the sustainability of the screen industry in Scotland. The overall aim of the research was: *To identify appropriate means, opportunities and instruments for Screen Scotland to promote stronger mitigation of carbon emissions in the screen sector, predominantly in production.*

3.2 The Brief

In our tender for the research, Creative Carbon Scotland proposed that we produce an initial report that would:

- Describe the context for the research, including
 - an outline of Screen Scotland’s aims and ambitions for the sector and the current state of the industry;
 - an outline of the likely impacts of the Climate Emergency declared by the Scottish Government; and
 - an analysis of the likely regulation and other impacts of the new Climate Change Bill then passing through the Scottish Parliament.
- Develop a ‘map’ of Scottish screen industry activities and the main sources of the environmental impact it is responsible for.
- Provide a digest of best practice from the UK, Europe and further afield where appropriate.

Following discussion of this report with Screen Scotland we would then focus on the best areas for intervention, considering the main sources of emissions and the most effective actions that could reasonably be taken, and produce a final report with proposals for implementation from summer 2020 as follows:

- **FUNDING** Identify where Scottish Screen funding mechanisms can best be used to encourage or ensure compliance
- **EVALUATION AND REPORTING** Develop mechanisms for funding recipients to report their actions to Screen Scotland and Screen Scotland to use this data
- **TRAINING** Identify training needs and possibilities
- **FACILITIES & INFRASTRUCTURE** Develop recommendations for studio and other facilities

However in the course of our research it quickly became clear that the complexity of the industry and the low level of awareness and engagement with low impact practices amongst all parts of it, from freelance and employed staff through to service and facility providers, was such that this two stage process was not as appropriate. This report therefore goes further than simply providing a description of the current situation prior to a set of short-term recommendations for Screen Scotland’s internal and funding processes, and instead makes the case for a more systemic approach. We propose to discuss this with Screen Scotland and to agree a way forward.

3.3 The Team

This report has been prepared by Dr Ben Twist, Director of Creative Carbon Scotland, working with colleagues Dr Fiona MacLennan, CCS’s Carbon Reduction Project Manager, and researcher Mairi Claire Bowser MSc, a Production Designer and Set Decorator who has significant experience in work to improve the sustainability of the sector.

3.4 Methodology

We used different approaches for different parts of this research.

3.5 Context and Background

We used desk research to complement our own knowledge of climate change policy and the screen industry in Scotland. Creative Carbon Scotland has good knowledge of Creative Scotland and its funding processes and of the exhibition sector, as well as a strong understanding of the relatively fast-moving legislative and regulatory environment relating to climate change in Scotland. We also have valuable experience of the practical business of bringing about systemic and practice change in the cultural sector. We brought in Mairi Claire Bowser to provide more detailed knowledge of the screen production sector and to benefit from her range of contacts in Scotland, the UK and America.

3.6 Sustainability in the Screen Industry in the UK, Europe and the USA

- a) For Scotland and the UK we approached a range of different respondents to arrange semi-structured interviews conducted by Ben Twist and Mairi Claire Bowser. The broad interview outlines are attached as Appendix 2, but the interviews were deliberately free-flowing so as to capture respondents' own views and not make assumptions. The respondents were approached using the following methods:
 - i. We wrote to the 20 Scottish Film Offices¹, with a follow-up email to those which didn't respond; we received some sort of response from ten and arranged a follow-up phone interview where appropriate.
 - ii. For Producers, Location Managers and other individuals/companies working in or supplying the screen industry in Scotland we wrote to an initial list of contacts supplied by the Scottish film and television directory 'Film Bang' as well as those we knew from our own work and interviewed those who responded, and then followed leads from those respondents to widen the circle. We interviewed a total of 35 individuals and organisations.
- b) For the European industry we contacted all the members of the Cine Regio² group by email and then followed up with those whose responses indicated that they had useful information. Nineteen film funds responded, some providing other contacts but nine replying that they had no relevant programmes or information to provide.
- c) For the US studios we made use of Mairi Claire Bowser's contacts in the US industry (particularly in Disney) and conversations with industry professionals in the UK who work with US studios.

3.7 Factors affecting the Screen Industry in Scotland and Education and Training

- a) To strengthen the report and our proposals we consulted with a number of organisations related to and supporting the screen industry, including training bodies and institutions. Again, we widened the circle when respondents provided useful additional contacts.

¹ <https://www.screen.scot/about/meet-the-team/screen-commission/local-offices>

² https://www.cineregio.org/about_cine-regio/ Cine-Regio is a network of 50 regional film funds in Europe.

4 Context and existing literature

4.1 *The 2019 Climate Change Act and declaration of climate emergency*

The First Minister of Scotland Nicola Sturgeon declared a 'Climate Emergency' on 28 April 2019. Shortly afterwards the Scottish Government announced that the Climate Change (Emissions Reduction Targets) (Scotland) Bill would be amended to take account of the advice provided to the Scottish Government by the UK Committee on Climate Change in May this year. The Bill as amended, posted on 26 June 2019, was passed, receiving royal assent on 31 October 2019, as the *Climate Change (Emissions Reduction Targets) (Scotland) Act 2019* and defined the following targets for emissions reductions:

- 2020 - at least 56% lower than the 1990 baseline,
- 2030 - at least 75% lower than the 1990 baseline³, and
- 2040 - at least 90% lower than the 1990 baseline⁴
- 2045 - at least 100% lower than the 1990 baseline

The new targets are therefore enshrined in law.

The Chief Executive of the UK Committee on Climate Change made clear in the Committee's report published in May 2019⁵ that a net-zero target means that there is no doubt that all emissions need to be eliminated: the screen industry will not be immune from this, despite the economic and cultural benefits it brings to Scotland.

'Within the UK, a 100% all-GHG target sends a clear signal that all greenhouse gases matter and all need to be reduced. No sources of emissions can qualify for special treatment. All emissions from all sectors must be eliminated or offset with removals.'

This is particularly clear when the idea of the 'carbon budget' is understood. The UKCCC's net-zero target, which has effectively been adopted by the Scottish Government, is based on the objective of staying within the agreed global temperature rise of 1.5° C and the clear relationship between 1 tonne of greenhouse gases (GHG) emitted and a calculable amount of global heating.

The 'net-zero' element of the target acknowledges that there will be some unavoidable emissions from highly carbon-intensive sectors such as agriculture, international aviation and some areas of industry. These will need to be 'offset' by sequestration of CO₂ (planting trees and improving soils and peat bogs). Screen production is not in these categories so by 2045 the screen industry will need to effectively eliminate its direct carbon emissions and will find itself purchasing goods and services that are carbon neutral, with the additional cost and other implications this will bring, with interim stretching targets for 2030 and 2040.

³ (<https://news.gov.scot/news/scotland-to-become-a-net-zero-society>)

⁴ Ibid p2

⁵ UKCCC Net Zero report May 2019 p17

4.2 Screen Scotland/Creative Scotland and the Public Bodies Duties

The new Act simply updates the targets set in the original 2009 Climate Change (Scotland) Act, without altering other elements within it. Part 4 of the 2009 Act covers the *Duties of public bodies relating to climate change* which itself includes the following clause:

(1) A public body must, in exercising its functions, act—

- a) in the way best calculated to contribute to the delivery of the targets set in or under Part 1 of this Act;
- b) in the way best calculated to help deliver any programme laid before the Scottish Parliament under section 53;
- c) in a way that it considers is most sustainable.⁶

Creative Scotland, the parent body of Screen Scotland, is listed in the details attached to the Act as a ‘public body’ and therefore has a duty to act so as to help achieve the stretching carbon reduction targets. Arguably this cascades down to Screen Scotland.

In October 2019 the Creative Scotland Board approved a paper recognising that the emissions created by the work they fund have a greater environmental impact than their own direct emissions and so they intend to ‘extend environmental obligations in [their] funding’. It is therefore appropriate that the same should apply to Screen Scotland’s funding.

4.3 Creative Carbon Scotland

Since 2011 Creative Carbon Scotland has been working successfully with (mostly) the subsidised arts sector on carbon management. Whilst acknowledging differences between the sectors, this provides us with a good deal of knowledge and experience that we can apply to the screen industry. It makes it possible to propose leapfrogging ahead to solutions that we know work rather than start from scratch.

Since 2014 we have also been working with BAFTA supporting their delivery of carbon literacy training in Scotland through the [albert programme](#). We discuss this work below.

Our work to date has included subsidised film exhibition organisations such as CMI, GFT, Regional Screen Scotland etc. The GHG emissions related to cinemas and even the Screen Machine and the actions required to reduce them are very similar to those of other arts buildings such as theatres with the main differences relating to specialist equipment and the distribution of films. Although this is not the main focus, this report summarises the makeup of the exhibition sector in Scotland and the key sustainability challenges and actions that it faces.

4.4 Existing literature

4.4.1 UK Film Council: Developing an Environmental Strategy for UK Film (2007)

Although some initial work focused on sustainability in film production was undertaken as far back as 2007 by the UK Film Council which commissioned a report⁷ from Dr Emma Gardner, sustainability in the Film industry hasn’t moved forward greatly in the UK as a whole and is still a new area for the industry in Scotland. The UKFC report outlined in very

⁶ Climate Change (Scotland) Act 2009, p24

⁷ [Developing an Environmental Strategy for UK Film, UK Film Council/Emma Gardner 2007](#)

clear terms the reliance and impacts of the screen industry on the environment (land, water, atmosphere – figure 3, p5 and figure 4, p6 of the report). It highlights the need to find practical ways which can be implemented to address these issues which remain relevant today and are now even more pressing. From today's perspective, the proposals and recommendations made do not go far enough.

Despite the UKFC 2007 report, it is notable that the 2017 report that led to the setting up of Screen Scotland doesn't mention environmental sustainability or climate change and the Screen Scotland Business Plan 2019/20 has Key Performance Indicators relating to Equalities, Diversity and Inclusion for each Objective but none relating to environmental sustainability or climate change.

4.4.2 BFI Green Matters report

The issue of sustainability has now risen up the agenda and the BFI commissioned a report in the summer of 2019 from Jim Barratt at Bigger Picture Research. The BFI report, *Green Matters*⁸, is subtitled *Environmental sustainability and film production: an overview of current practice* and so differs from this report in that it focuses on current activity rather than looking forward to practical steps for the future. During the course of this research we had two telephone conversations with Jim Barratt and staff from the BFI and it is clear that they have reached similar conclusions to us about the current state of affairs. We make use of their discussion in this report, but it is worth quoting some of the key findings here:

A step change is needed in industry efforts to help meet the UK's legally binding carbon reduction commitments. Tighter regulation and obligations are likely in the near future. Attitudes to environmental sustainability are changing in the film industry, but current approaches lack strategic co-ordination. There is a risk of industry disengagement unless messaging and support are in tune with corporate thinking, and the commercial and practical realities of feature film production in the UK.

- *Climate change is an issue of concern in the film industry and there is growing recognition of the challenges posed. But it remains a low priority in the face of other commercial pressures (including the squeeze on studio and crew capacity resulting from the current production boom).*
- *In the UK, the **albert Consortium** (led by BAFTA) aims to unite the production sector around a strategy to achieve zero-carbon, zero-waste. While albert has made significant strides in raising awareness of sustainable practices and changing behaviour in the television industry, more needs to be done to engage the film production community to achieve zero-carbon, zero-waste.*
- *The situation is complicated by the fact that the major US studios who make films in the UK use an alternative system of carbon calculation and sustainability certification hosted by Production Guild of America (PGA). This overlaps with*

⁸ *Green Matters: Environmental sustainability and film production: an overview of current practice* Bigger Picture Research, pub March 2020, BFI <https://bit.ly/3eL6sXf>

albert's approach, but there is no common standard and sustainability practices can vary widely from production to production.

- *This is exacerbated by the lack of publicly available data about the scale of the environmental challenge facing those involved in film production and current sustainability practices. Without hard data informing strategic planning and consensus-building, the film production industry as a whole will struggle to gear its response in a way that manages continued growth while taking proportionate and effective action. To address this, the report proposes fast-tracking the collation of carbon footprinting data across a sample of film productions of all sizes and types (including those currently using albert's and the PGA's carbon calculators), for data modelling to inform cross-industry efforts.⁹*

The lack of progress in the industry described here is perhaps reflected in the fact that whilst some individuals and organisations that we contacted were keen to meet and contribute to this research, others didn't return calls and emails. Interest is patchy and down to individual preferences rather than an overall industry engagement with the issue.

4.4.3 CineRegio Green Report 2020

The CineRegio network of European regional film funds has a green subgroup which produced its fourth report early in 2020 in which the group substantially raises its ambitions compared to previous reports. It includes a manifesto for future joint action and provides examples of policies and strategies, case studies, tools etc. We discuss elements of this report [below](#).

4.5 COVID-19

As this report was being finalised the COVID-19 pandemic was still more or less at its peak and nearly all screen production in the UK had ceased. It is not clear how soon the industry will re-start, but the British Film Commission in early May 2020 produced a draft Film & TV Production Codes of Practice, identifying actions that would need to be taken before filming could begin. Some likely pandemic-related actions could be translated into similar sustainability ones – for example the need to implement crew-wide anti-COVID-19 training before a production starts is parallel to the need for crew-wide sustainability training.

Despite the disruption of the pandemic, the ensuing recession and the likely changes to society and the ways in which we live and work in a world where COVID-19 exists, climate change is not going away. The pandemic is an urgent emergency but climate change is a slow one. The Climate Change Acts of 2009 and 2019 and the UK's international obligations will still apply.

The pandemic offers an opportunity, particularly if the industry doesn't re-start for some time, to introduce new practices or translate existing ones to help deliver reductions in carbon emissions. In addition it provides time to introduce requirements for funded productions to measure their carbon emissions using a standard approach. We shouldn't miss this chance to bring about change.

⁹ Green Matters, p10 Executive Summary

4.6 Conclusions from this section

The Scottish Government's target therefore makes it clear that in the medium to longer term the screen industry needs to work towards operating on a zero-carbon basis.

Creative Scotland, as the parent organisation of Screen Scotland, has committed to addressing the carbon emissions caused by the work that they fund as well as their own direct emissions.

The lack of progress touched upon by the BFI in their report is perhaps reflected by the patchy engagement we had with this research.

5 Education, Skills and Training

5.1 *albert*

The *albert* consortium, with a directorate comprising BBC, ITV, C4, Sky, Netflix and BT Sport, managed by BAFTA and with members including major broadcasters and producers including the Sky, Endemol, Hat Trick, Channel 5, Kudos, IMG, UKTV etc, is the main initiative in the UK on environmental sustainability in the screen production industry¹⁰. It provides tools to calculate carbon emissions and plan to reduce them, a certification process *albert+* and free training to:

*'help industry colleagues to live and work sustainably by providing an optimistic, science-based, solution-centric and enjoyable introduction to the environmental challenges we face.'*¹¹

albert is strongly supported by the main broadcasters and is increasingly being incorporated into standard production processes: the *albert+* accreditation can regularly be seen on the end board of long-running dramas, comedy and factual productions as well as drama series and one-off productions. Companies producing for the Directorate members are required to calculate their carbon footprint using the tools and carbon calculator which *albert* provides.

5.1.1 *The albert tools and certification*

The standard footprinting process, which is not dissimilar to approaches in other industries, including that run by Julie's Bicycle for the subsidised arts sector in England, involves:

- Registering in the scheme
- Estimating the production's carbon footprint using information about locations or studio use, crew, travel etc. A video on the *albert* website explaining the process says that, with the right data to hand, the footprint for a production can be estimated in around 30 minutes, suggesting it is not an onerous task.
- Pledging to reduce emissions where possible
- Keeping records during production and inputting these data into the tools during or at the end of the production period. This is probably the most time-consuming element, but good record keeping will minimise this.
- Submitting a final report, which is reviewed by an *albert* auditor. This reporting enables users to compare their production's results with others and benchmarks, and also contributes to the overall database providing information about the industry's overall footprint.

The *albert* process seeks to capture data on all three Scopes of the international carbon accounting standard, covering Scope 1, fuel burned; Scope 2, electricity used; and Scope 3, carbon associated with services and materials purchased or used. The process does however rely on the user providing accurate data. No evidence is required, although the audit presumably compares a production's claimed figures with benchmarks and when a production is footprinted by a unit within or reporting to a larger company the company's own *albert* reviewer will compare it with others within their knowledge base.

Certification using *albert+* goes significantly further. This process is more rigorous and evidence is required for certification after the production is complete (special systems operate for live broadcasts). A web-form, which must be completed at the pre-production

¹⁰ <https://wearealbert.org/>

¹¹ <https://wearealbert.org/2019/10/29/sustainable-production-training-glasgow/>

stage, asks various questions which prompt the user to incorporate more sustainable practices into the production budgets, schedule and plan. These aim to reduce the environmental impact of the production, to share best practice throughout the production team and supply chain, and to disseminate best practice throughout the industry and wider society. Incorporation of the various practices and actions into the production earns points, and one, two or three stars are awarded for achieving more points. The form is then submitted and assessed internally. At the end of the production a set of relevant to the specific production but randomly selected questions are sent to the producer by *albert*, the answers to which must be backed up by evidence such as supply chain invoices, memos or email discussions. Only once the evidence has been reviewed by the company assessor, an *albert* reviewer and an independent auditor is the certification confirmed and an *albert+* credit is sent to the production to be used on the end board of the film or programme.

5.1.2 *albert* training

It is important to distinguish between the *albert* tools, process and *albert+* certification and the free training which the consortium provides, which is aimed at building up expertise amongst all freelancers and staff in the industry and so enabling and encouraging more sustainable practices on productions. With more senior staff and crew members trained, successfully achieving *albert+* certification should be easier, but the training itself is focused on individuals rather than productions. The training is offered for different groups of people:

Sustainable Production Training provides the knowledge and skills to create productions in a more sustainable way

- *environmental basics*
- *industry's impact*
- *production case studies*
- *carbon calculation and certification*

For ***Producers + Commissioning Editors*** [it provides] the knowledge and skills to deliver an accessible, authentic on-screen environmental message in all genres.

- *environmental basics*
- *industry's current performance*
- *engagement techniques*
- *planet placement*

For ***Senior Leaders*** [it provides] the knowledge and skills to deliver an accessible, authentic on-screen environmental message in all genres.

- *environmental basics*
- *industry's challenges and opportunities*
- *designing a strategic response*
- *creating a culture for success*¹²

Most training in Scotland is Sustainable Production Training and is largely provided by freelancers from elsewhere in the UK, as there are few accredited trainers in Scotland. The *albert* training uses an approach developed by the [Carbon Literacy Project \(CLP\)](https://www.carbonliteracy.com)¹³, a social enterprise based in Manchester. The first half of the curriculum provides information on the

¹² adapted from the *albert* website <https://wearealbert.org/about/free-training/>

¹³ www.carbonliteracy.com

science of climate change, its causes and the impacts; the second half focuses on the areas that the trainee group is focused on, in this case screen production.

Creative Carbon Scotland has some experience of developing and running a CLP curriculum for festivals and other organisations in Edinburgh. We have also worked with BAFTA to run *albert* training sessions in Scotland and attended some of them. Although it has some value, we found that the curriculum requirements made it a rather rushed experience for the trainer and participants, with a lot to cover in one day. It is also perhaps a bit basic. However Keep Scotland Beautiful have recently been successfully using a CLP-approved curriculum for community organisations with a Climate Challenge Fund grant from the Scottish Government¹⁴. Their trainees, who are the general public with some interest in climate change and relating it to their wider lives rather than considering it in a professional capacity in a fast moving, highly technical area, are perhaps closer to those for whom the CLP originally conceived the project.

Users' experience of *albert* training in Scotland is covered [below](#).

5.2 Higher and Further education

Twelve higher education institutions in Scotland offer undergraduate and/or post-graduate courses in screen production with more coming on stream each year. The Screen Academy Scotland at Napier University is the best established and the one most focused on the subject. Screen Academy also works with City of Glasgow College on their BA (Hons) Television course and other further education colleges also provide lower level courses. The Royal Conservatoire of Scotland also offers a BA in Filmmaking.

At the Screen Academy there has been consistent work on sustainability for both Masters students and their Screen NETS trainees (generally graduates who then work on placements in the industry). Although reduced budgets have curtailed elements of this work, the Screen Academy is far ahead of for example the Royal Conservatoire of Scotland where 'there is nothing in the course at the moment related to sustainability'¹⁵.

These higher and further education institutions are funded through the Scottish Funding Council, which is a member of the Screen Scotland partnership. As the 'national, strategic body for funding teaching and learning, research, innovation and other activities in Scotland's 26 colleges and 19 universities and Higher Education Institutions' it has convening and influencing power, but does not control or influence the courses the FE and HEIs run.

5.3 The National Film & Television School Scotland

NFTS Scotland is an outpost of the NFTS in Beaconsfield and provides a variety of continuing professional development courses, mostly in craft and technical skills in the areas of drama, factual and entertainment, from 1 day to a year-long part-time diploma. They have a bursary scheme to widen access and the programme includes new-entry and early-career level as well as CPD for more experienced professionals. Most courses are run by professionals who are active in the industry. They complement and work closely with Higher

¹⁴ See for example <https://www.keepsotlandbeautiful.org/news/jan-2020/free-training-offered-by-community-leader-climate-programme/>

¹⁵ Conversation with RCS Head of Film

and Further Education institutions such as the Royal Conservatoire of Scotland, Napier University and the City of Glasgow College.

NFTS currently co-ordinates some *albert* training in Scotland. They noted the difficulty of adding an extra full day to existing courses, and of getting attendance to yet another training course, which means losing a day's work or a day off. They felt they themselves lacked the skills to deliver the *albert* courses. They felt that the training and approach needs to be embedded within core skills. They were therefore interested in incorporating the *albert* training or equivalent into their own courses, acknowledging that this would incur costs as they would have to train their trainers, but as their trainers tend to be active professionals at a more senior level, it would help embed the practices in the industry and the advice and examples would be current, Scotland-specific and practical. Together we considered whether it would be feasible to build up the knowledge necessary to get the *albert* certificate through various courses, rather than having to get all of it in one training period.

5.4 Skills Development Scotland

Skills Development Scotland is Scotland's national skills body. It aims to '*contribute to Scotland's sustainable economic growth by supporting people and businesses to develop and apply their skills*'. For SDS, screen production forms part of the wider Creative Industries including advertising, architecture, visual art, crafts, fashion and textiles, design, performing arts, music, photography, film and video, computer games, radio and TV, writing and publishing, heritage, software/electronic publishing and cultural education. Whilst SDS used to have a 'Low Carbon Skills Fund' this has now been mainstreamed into all areas, whilst particular emphasis is placed on the transition for workers from the oil and gas sector into other fields. Accordingly SDS provides relatively little direct training, most of which takes place either in HE and FE institutions or through short courses such as those provided by NFTS.

Our respondent at SDS recommended learning from the BFI's introduction of diversity standards as an analogue for what Screen Scotland is aiming to do with environmental sustainability. They also referenced those companies who have provided Health & Safety (CDM) services to the industry.

5.5 BECTU Vision

BECTU (the Broadcasting, Entertainment, Cinematograph and Theatre Union) is the union for non-performance workers in broadcasting; film and cinema; digital media; independent production; leisure; IT and telecoms, and theatre and the arts. Unlike other groups mentioned here, it has a page on its website dedicated to Environment and states that the climate crisis is a key issue for its members. Its representatives were keen to be consulted for this research.

*'The BECTU Vision project delivers targeted short courses and a drama training programme of activity to support the skills development of crew in Scotland.'*¹⁶

They generally provide short skills-based courses, free-of-charge, so that members can use the skills themselves and also improve their CVs. Courses are usually on a Saturday and ideally during quieter periods, so that members are not losing work by attending, but BECTU would argue for in-production training, so that all the crew share the same knowledge: it could also be more production-specific

The respondents from BECTU Vision were supportive of *albert* training but echoed similar comments to those quoted above. They felt the current training is too generic and would like to see the appointment of someone who was available to support individual productions. However the fact that the scheme is widely recognised across the industry was important to them – it is then transferable (and this presumably applies across the border).

Even more important, they emphasised the need to ensure that sustainability was built in early on in a production – by the time many of their members are engaged it is too late: budgets and schedules have been set. Once a production has been green-lit it can be only a few weeks before people are on set, which doesn't allow enough time to change practices – everyone falls back on what they know.

They also felt that productions didn't have much agency – there are too many things outside their control.

5.6 Screen Skills

Screen Skills is the UK-wide, industry-led skills charity for the screen industries. They identify skills gaps; provide careers information, direct people to relevant training and provide bursaries etc; and generally support the development of people's careers in the screen industry at all levels. There is no mention of environmental sustainability on their website and a telephone enquiry elicited the response that although individuals in the organisation were passionate about climate change and sustainability, and the organisation was required to improve its own environmental performance to comply with its Arts Council of England funding conditions, when we consulted them Screen Skills was not itself undertaking any research into the skills required for industry workers.

5.7 Film Education

Film education is the term used to cover areas such as the appreciation of film as an artform, critical understanding of films, awareness of the canon including a wider range of work from world cinema, art-house and popular film, and creative film-making skills. It is perhaps usually focused on the development of young people's understanding of film and video but can be applied more widely to the population as a whole. The sustainability issues of this area are largely dealt with by other fields, such as the education and film exhibition sectors and so they are not dealt with in this report.

¹⁶ <https://bectu.org.uk/bectu-vision/>

6 The Screen Industry in Scotland

6.1 Screen Production – outline and structure of the industry

This report focuses on the screen industry in Scotland as it relates to the production of film and broadcast media (fiction, factual and commercials) rather than the related industries of gaming and narrow-cast screen content production. It also touches upon film exhibition in cinemas and upon film education.

The screen production industry in Scotland is a small part of the larger UK industry, mostly focused on London, and the much larger global one. Decision-making groups and finance providers are often London-based, leading to a focus on the capital and south-east England for production, jobs etc. Creative talent and technical and production workers easily and regularly cross borders, and many may be based in Scotland but work elsewhere some or much of the time. Factors outwith Scotland's control such as the availability of film tax relief and the value of Sterling may have as much influence on the amount of production taking place in Scotland as the locations, the local funding available and the skills and talent pool¹⁷.

The 'screen production industry' itself is a misnomer, since many of the large number of craftspeople, professionals and companies involved work only partly in the screen industry: carpenters may work in the screen, exhibition, shopfitting and theatre industries; transport providers serve all sorts of users. Even within the screen sector, people and companies may work in production of TV, commercials, drama, video games, training videos and so on. Only some of these fields are the focus of Screen Scotland's work and many of them are not directly affected by Screen Scotland's funding or influence. Freelancers may be disconnected from other parts of the industry and difficult to reach for training or other purposes.

The industry is also very interconnected: individuals may work as freelancers and for facilities or other companies. Production companies may develop their own slates as well as produce work for broadcasters or others, with smaller companies applying their expertise to more commercial projects in order to survive long enough to develop the less commercial projects they really want to focus on. All depend on other parties to make their work: production companies need location managers who rely on transportation companies. There are no single points of intervention through which change can be brought about, although there are roles and companies that have more influence than others.

This disparate nature of the industry is reflected in the funding and support landscape. As described by the Screen Sector Leadership Group report in 2017¹⁸, *'the sector is fragmented with a number of different bodies having some responsibility in specific areas. This means that there is no agreed, over-arching screen strategy and a lack of leadership and accountability.'* That report of course led to the setting up of Screen Scotland and the

¹⁷ 'As Scotland remains part of the UK, many of the factors shaping the level of film production are determined at the UK level, such as policies on film tax relief, the allocation of National Lottery funding and the exchange rate. Film in the UK is a London-centric business, and Scotland's film sector is perceived to be remote from that centre.' Report of the Screen Sector Leadership Group, 2017, p6

¹⁸ https://www.creativescotland.com/__data/assets/pdf_file/0007/38167/SSLG_Final-Report_January2017.pdf

partnership agreement between many of the relevant agencies. But many of the individuals and companies working in the industry may have contact with one, some or none of the agencies.

It will therefore be necessary to consider the whole industry as a system rather than a monolithic sector in which to bring about change, even by a partnership such as Screen Scotland.

6.2 *Film and TV production in Scotland*

Film and TV production in Scotland breaks into five main categories:

1. **Independent short- to feature-length films produced by locally based companies**, often using Scottish creative talent, or incoming independent productions making use of Scottish talent. These will generally receive funding from Screen Scotland, which may well be the cornerstone funder. During the year 2017/18, Screen Scotland supported 17 feature films and documentaries through its Film Development and Production Fund.¹⁹
2. **Content produced by or for one of the main broadcasters** (BBC, ITV, Channel 4 etc), using their own and external commercial or other resources. This may be focused on the Scottish audience (i.e. for mostly local broadcasting) or may make use of Scottish talent. Channel 4 has a 'minimum spend' agreement with Ofcom and the BBC has a voluntary target of 9% of UK network spend in Scotland. Screen Scotland's Broadcast Content Fund aims to encourage and support more content production in Scotland.
3. **Large-scale international films produced by major studios**, often from the US. These will be commercially funded and will come to Scotland to benefit from film tax relief, to make use of relevant locations, and/or to benefit from the current low value of Sterling. These productions may only come for the short periods needed to use a particular location. In 2017/18, seven awards were made from the Screen Scotland Production Growth Fund aimed at these productions.²⁰
4. **Commercials** It is not clear how many commercials are produced in Scotland as these productions tend to be quite short and may not make contact with the Film Offices or Screen Commission. They are therefore not the focus of this research, although some elements of it will be relevant to them.
5. **Videos and narrow-cast material** are not covered by Screen Scotland's activities and so are not included in this report. However, people and companies will work across all areas, locations will be used by all sorts of productions, etc so many of the recommendations, opportunities and challenges that we pick up will apply equally to these areas.

6.3 *Scottish based workforce*

- The industry database Film Bang lists about 1000 freelancers working as general crew members at all levels and in all departments, plus 200 facilities companies with additional crew available²¹
- A report by Olsberg SPI identified 487 businesses operating in production (including TV and film), exhibition and distribution (excluding non-Scottish cinema chains),

¹⁹ Screen Scotland Annual Review p9

²⁰ Screen Scotland Annual Review p9

²¹ Film Bang is the reference book for the film industry in Scotland. Figures taken from the website <https://www.filmbang.com/> on 14/08/19 and an email conversation with the editor Marianne Mellin.

employing 1,503 full time equivalent staff, indicating that the majority were SMEs or probably micro-businesses²²

- When non-Scottish domiciled cinema chains and individual productions employing freelancers were added to this, Olsberg SPI estimated that the total employment might be 2,850-3,890 FTEs²³
- A member of Screen Scotland’s Screen Commission, which supports productions wanting to film in Scotland, estimated that there are:
 - 15-20 Line Producers consistently working in Scotland (12 are listed in Film Bang) earning £300-400/day
 - Around 30 Location Managers, including location scouts (this estimate fits with Film Bang), earning £250-400/day
 - 10-20 Production Managers – (26 on Film Bang) earning £300-400/day
- 36 production companies are listed on Film Bang

6.4 Local Film Offices

The Screen Commission lists 20 local film offices covering the major cities (Edinburgh, Glasgow, Aberdeen, Dundee, Inverness), the Northern and Western Isles and large areas of more rural Scotland including the Highlands.²⁴ These are mostly based within or closely connected to local authorities. In addition, the Screen Commission will help find locations and services, to attract more film-makers to Scotland. Results of our consultation with the Film offices are discussed [below](#).

6.5 Locations

Most of the Scottish industry is based in the Central Belt but locations all over Scotland are a draw for filming, with producers both local and incoming seeking new and unrecognised locations where possible. There are also some locations which are regularly used, such as Parkhouse Business Centre in Glasgow, Glencoe Ski Centre and Calton Road in Edinburgh. The new studio planned by Screen Scotland has potential to provide a hub for networking as well as filming.

On location productions use a range of facilities and services which are particularly relevant in this context, including transport and mobile catering, sanitation and power supplies. These services are often brought together by Location Managers on behalf of producers, making them crucial agents in reducing the impacts of productions. We spoke at length to three well-established location managers about their knowledge and interest in environmental sustainability. Our findings are discussed [below](#).

6.6 The new Studio

At the date of writing it has not been possible to discuss in any detail the proposal to create a new studio in Leith, as the details are still confidential. This is disappointing, as it is clear a studio in itself will have a carbon footprint, but also because the development of a new studio provides the opportunity to embed practices that reduce emissions – or indeed that increase them. There are three areas of opportunity that should not be missed:

²² Report to the Screen Sector Unit Project Board by Olsberg SPI 2017 p1

²³ Ibid

²⁴ <https://www.screen.scot/film-in-scotland/screen-commission/local-offices>

6.6.1 *A low-carbon building*

The redevelopment of a building offers the opportunity to both reduce the energy demand of the building and to incorporate renewable technologies to generate electricity or provide low carbon heating. The accepted approach is that most important is to reduce demand, through insulation, draught-proofing, zoning of any heating system to enable only the areas in use to be heated, etc. Only once these possibilities have been exhausted should investment of renewable and low-carbon technologies be considered, although it is always valuable to prepare for them, permitting cheaper and efficient retrofitting at a later stage if the opportunity arises or new technologies are developed.

We held a short discussion with the likely developers of the Leith studio as they were interested in making the most of the location and the development of the site to install renewable technologies. We were able to provide some advice about potential suppliers.

6.6.2 *Low carbon practices within and around the building*

Just as important however is the operational model of the new studio. If the studio operates in a standard way, there is little connection between the studio and the production, so even if one is engaged, the other isn't.

Under the standard model, when a production hires a studio they may just get the building and skeleton staff: no power, waste disposal, laundry facilities etc are included, so the production has to provide their own, meaning there is no incentive for the production to invest in longer lasting equipment and no provision for the studio management to procure green electricity or better waste management. Items such as washing machines are bought new for each production and then disposed of. Time is tight and paid for, so at the end of a shoot, the imperative is to get out quick, so it is easiest to just dispose of things into the waste stream, not to re-use, re-home, recycle or re-purpose it.

A more sustainable model would provide a fuller service, encouraging lower carbon practices, the re-use of equipment etc.

The new studio operators should also consider transport to the studio for those working there. One of the producers we spoke to identified as a problem the fact that a much-used production base was difficult to reach on foot from public transport services, which encouraged the use of cars, perhaps particularly by female workers. Similarly crew members consulted noted the importance of showers, changing rooms and secure covered cycle parking for those cycling to work. Making use of government funding to encourage active travel²⁵ could improve the situation.

6.6.3 *An influence on the local industry*

A studio, particularly one which is the main provision in Scotland, has the opportunity to enable and encourage practices throughout the local industry. If it supports and encourages, or even requires, certain pro-environmental practices, these are likely to become accepted and normalised in the local industry as locally based crew and others will be used to and understand them.

²⁵ <https://www.transport.gov.scot/active-travel/>

The new studio could also provide or be aligned with certain services and facilities, such as a set recycling depot, that would enable location-based productions to improve their environmental performance.

The proposed new studio offers an important opportunity not just to reduce greenhouse gas emissions within the studio itself but to influence and support wider action across the industry.

6.7 Screen Scotland

6.7.1 Partners

Screen Scotland is a unit within Creative Scotland and is a partnership with Scottish Enterprise, Highlands and Islands Enterprise, Skills Development Scotland, Scottish Funding Council, with funding from the Scottish Government and the National Lottery.

6.7.2 Aims

Its aim is to lead the growth of Scotland's screen sector by:

- **Boosting production** by increasing funding and support to grow the number and diversity of film and TV productions from Scotland
- Creating **specialist business development provision** for screen businesses ensuring that advice and support is appropriate and easy to access
- **Improving employment opportunities** in the sector through increased and co-ordinated opportunities for training and development
- **Developing audiences** by improving access to Scottish film and TV productions at home and internationally
- Growing and improving **Scotland's screen infrastructure** including studio facilities
- **Developing Scotland's reputation** as a destination for international productions and co-productions, supported by our world-class talent, crews, facilities and unique locations

6.7.3 Support programmes for Screen Production

Screen Scotland supports screen production through a range of funds and services:

The Screen Commission:

- Helps producers and others find locations
- Helps find talent, crew and other staff and facilities companies
- Provides advice and information about UK tax incentives
- Has links and relationships with other relevant suppliers, offices etc

Funding

This is broadly relating to the three categories of production listed below:

- Film development & production for feature-length films and documentaries for film-makers based in Scotland, or films reflecting or promoting Scottish culture, creativity and diversity, or international film-makers working with Scottish-based writing or directing talent
- Broadcast content production by companies based in Scotland, or where Scottish-based companies have a meaningful role in a co-production
- Large-scale international productions which are maximising use of Scottish talent, crew, facilities etc

Business support

- Screen Scotland is a gateway to other support from Scottish Enterprise, Business Gateway and Highlands & Islands Enterprise

6.8 The Exhibition sector in Scotland

6.8.1 Makeup of the Exhibition sector in Scotland

Screen Scotland works with cinemas and others to support the exhibition of a wide range of film. Although there are many, diverse locations which screen films, film exhibition is dominated by commercial multiplex cinemas particularly in the Central Belt with community cinemas dominating in more rural areas. A report commissioned by Creative Scotland in June 2016 on 'Mapping Film Exhibition in Scotland'²⁶ reported that there were 36 Multiplexes, 26 Independent cinemas, 48 Multi-arts venues, 45 x Community cinemas, 60 x Film societies or clubs, 69 Festivals, 62 Mobile and touring organisations. The 2014 Review of the Film Sector²⁷ reported that 76.3% of the screens were in multiplex cinemas and over 75% were owned by four companies. Regional Screen Scotland and Film Hub Scotland support smaller and community focused exhibition and there are a number of multi-screen non-commercial cinemas including Filmhouse (Edinburgh), the Belmont (Aberdeen) and Glasgow Film Theatre, with additional screens in mixed artform venues such as Eden Court (Inverness), the MacRobert (Stirling) and DCA (Dundee).

Over 30 film festivals take place annually in Scotland with many more, largely associated with community clubs and societies appearing on an ad hoc basis. About two-thirds of Scottish film festivals take place in Glasgow or Edinburgh but other locations such as Aberdeen, Dundee, Inverness, Stirling, Nairn, Peebles, Hawick and Fort William are scheduled to host festivals in 2020²⁸. The Edinburgh International Film Festival (EIFF) and Glasgow Film Festival (GFF) are the largest, most established and highest profile in Scotland and also rank in the top three film festivals in the UK.

EIFF, established in 1947, enjoys a long-standing international reputation as a business hub for UK and international filmmaking; GFF is a more audience driven festival with 35,000 admissions. Some of the smaller festivals have a focus on exhibiting and developing the work of local film makers e.g. the Scottish Youth Film Festival²⁹ or the Scottish Queer International Film Festival³⁰. Others are based on a topic of interest and show a mix of local and international films e.g the Dundee Mountain Film Festival or Africa in Motion Festival which are scheduled for 2020.

Despite commercial dominance of the exhibition sector, Scotland has more 'cultural' screens (i.e. non- mainstream ones) than the UK average, with over five per million people

²⁶ Mapping film exhibition in Scotland - https://www.creativescotland.com/data/assets/pdf_file/0019/35191/Film-Exhibition-in-Scotland-June-2016.pdf

²⁷ Review of the Film Sector in Scotland https://www.creativescotland.com/data/assets/pdf_file/0018/25245/Review_of_the_Film_Sector_in_Scotland_-_Jan_2014.pdf

²⁸ Extract from The List - <https://www.list.co.uk/events/scottish-festivals/film/>

²⁹ Scottish Youth Film festival - <http://syff.scot/>

³⁰ Scottish Queer International Film festival - <http://www.sqiff.org/>

compared with the UK average of four. Both the Glasgow and Edinburgh festivals are developing their industry and audience potential, but both are currently constrained by available facilities.

6.8.2 Key sustainability issues for exhibition

Most cinemas are housed in large buildings and serve large audiences so share the same problems and solutions in relation to high energy needs as large theatres. In addition, cinemas use energy intensive projection equipment which is expensive to run and maintain. Films are distributed on physical media (e.g. hard drives), resulting in significant shipping cost and associated transport emissions. With long operating hours this adds up to some of the highest emissions and operating costs for cultural buildings. Typical catering in cinemas uses large amounts of single use cups, containers and plastics, which must be disposed as of landfill waste at high cost.

A recent blog published on the Independent Cinema Office website describes the way forward with the development of Depot³¹, a sustainable independent 3-screen cinema and café-restaurant, opened in May 2017 in the centre of Lewes, East Sussex. The building was refurbished to include both energy efficient and energy generating technologies. New LANSat technology projection systems provide electronic distribution of Digital Cinema (DCP) packages which run on an IP network avoiding the need for drives to be regularly transported by vehicle. Two out three projectors use laser instead of Xenon lamps which last significantly longer and use less power. The building uses LED lighting and uses a Ground Source heat pump and roof vents for heating and cooling. Reusable food and drink containers are used and waste is separated.

The blog makes the point that a successful upgrade to buildings and equipment requires both capital funding and guidance from specialists (e.g. an energy consultant or architect) to ensure money is spent effectively. In the longer term, support for a 'Green Team' is needed to encourage, develop and maintain more sustainable practices for running the cinema such as waste reduction and equipment maintenance.

6.8.3 Sustainability programs in Commercial Cinemas

Some of the larger independent cinemas such as the Filmhouse in Edinburgh³², the Belmont in Aberdeen and the GFT in Glasgow³³ have an established history of measuring, monitoring and reducing their environmental impact as well as promoting sustainable values to their patrons. Some multiplex cinema chains such as the Odeon group and Cineworld are also developing and promoting sustainability programs although others like Vue and Showcase do not publicise their policies. The Cineworld group address environmental issues as part of their Corporate Social Responsibilities and is actively working on reducing energy consumption and amount of waste materials e.g. using e-tickets and digital poster cases to reduce their carbon footprint and use of resources.

³¹ Independent Cinema Office, blog on Depot - <https://www.independentcinemaoffice.org.uk/blog-sustainable-cinema-depot/>

³² Edinburgh Filmhouse Environmental commitment: <https://www.filmhousecinema.com/about-us/environmental-commitment>

³³ <https://glasgowfilm.org/what-we-do/environment>

Internationally and in the UK, cinemas in the Odeon group have been taking measures to reduce their footprint. The Cinesa team in Spain cut electricity consumption by 13.5% in three years, resulting in a 22% cost saving. In Italy, they achieved a €1.4m cost reduction in three years, and in Sweden their Filmstaden cinemas reduced energy consumption by 6.7% 2017 vs 2016. Their Milton Keynes cinema is 'lit by the sun' with 286m surface area of solar panels providing 85% of the electricity used to light the building. The cinema recycles 90% of its waste and water consumption has been reduced by approximately 40% due to low flush toilets.

The Odeon group in the UK and have held the Carbon Trust Standard for Carbon since 2010 by investing in new equipment – from printers to new air conditioning units, LED lighting across the estate and using renewable energy where possible.

6.9 Conclusions from this section

It will be necessary to consider the whole industry as a system rather than a monolithic sector in which to bring about change, even by a partnership such as Screen Scotland.

The proposed new studio provides an opportunity to influence the wider industry to develop as a low carbon one.

When it comes to running a low-carbon studio, developing and maintaining appropriate low-carbon practices by staff and incoming productions are as important as creating and running a low-carbon building.

To fully achieve this it may be appropriate to encourage the operators to adopt a different, 'full-service' model to that usually offered by studios to incoming productions.

7 Sustainability in Screen production - UK, Europe and North America

7.1 Best practice in the UK

There are several well-established organisations in the UK which are aimed at supporting sustainability in the screen production industry and the live arts, most of which have developed organically rather than being linked to funding.

7.1.1 Dresd

Based in Wales, Dresd³⁴ takes materials from productions and facilitates their re-use, in other productions or in other fields such as events, interior design, furniture design and production etc. *'We work in collaboration with productions and help them to adopt best practice methods for the recycling of materials from concept to delivery. We repurpose sets, making it possible to reduce the impact of production. We have a successful track record of supporting a number of productions, both large scale and low budget. We are recommended by the BBC and we are an official albert supplier, which supports an environmentally sustainable future for the TV and film industries.'*

7.1.2 The Costume Directory

This is a physical and online resource which aims to share information, ideas and contacts across costume departments free of charge. It currently hosts approximately 300 ethical and sustainable suppliers, and also exists as a forum on Facebook³⁵ and Instagram. It is a crew-led initiative, started by Costume Designer Sinead Kidao, and run in partnership with Ilishio Lovejoy, Policy and Research Manager of campaign group Fashion Revolution.

7.1.3 Green Screen – Film London

Green Screen³⁶ is a practical online tool that supports environmentally friendly filming in London. The platform enables productions shooting in the capital to set their own environmental targets and provides them with an action plan to help them achieve their goals. Productions that register for Green Screen receive access to resource guides, a bespoke crew memo, and simple tailored tips for each production department.

After achieving their goals, they are awarded with the official Green Screen stamp, which they can use on their end board and promotional materials to demonstrate their green credentials to the world.

7.1.4 GreenShoot

Greenshoot is possibly the oldest consultancy working in this area and claims to have supported over 160 productions since its founding in 2009. Greenshoot runs training; works with partners including Film London and the BFI on their environmental programme, which *'gives productions a basic, simple and practical environmental plan with certification at the end'*³⁷; provides consultancy; and arranges for donations of unwanted materials to charities

³⁴ <http://www.dresd.co.uk/what-we-do>

³⁵ <https://www.facebook.com/groups/1727758307479893/>

³⁶ http://filmlondon.org.uk/green_screen

³⁷ <http://www.greenshoot.com/about>

at the end of a production. Greenshoot's Melanie Dicks has provided support to Outlander in Scotland, mostly around waste reduction and management³⁸.

7.2 Best practice in Europe: Cineregio

Much of the information we have gathered about best practice in Europe is from members of Cine Regio³⁹, a network of regional film funds in Europe with 50 members from 12 EU Member States, Norway, Switzerland and the UK, where these include Film London and Ffilm Cymru Wales. Between them they run a range of support schemes and services to the film sector which aim to 'support film culture, encourage social cohesion and build regional infrastructure'⁴⁰, and to promote good practice and share experience among its members in all aspects of screen production, with sustainability only one of many aims. To some extent this is focused on attracting film makers to work and use locations in their regions.

A Green sub-group within CineRegio comprising 28 members, ie just over half the total network membership, has published four Reports since 2012, the most recent of which, dated 2020⁴¹, announces a Manifesto for Sustainable Filming. This states:

With this statement, the supporting institutions wish to contribute to the awareness of Green Filming and of enhancing sustainable and climate friendly measures in film and television production and its funding.

Many professionals working in film and TV are concerned with environment and climate friendly production. There is, on occasion, uncertainty as to whether higher costs connected with sustainable production may be included in production budgets and whether they may be eligible for public sector funding.

As a matter of fact, Green Filming does not necessarily result in higher costs. Furthermore, innovation and advanced technology allow productions to work in an increasingly resource friendly and cost effective way.

However, if additional costs do arise through environmentally friendly filming, these costs should be eligible as part of the production budget. The CineRegio Green members recognize approaches to sustainable production and their associated costs and confirm their eligibility for public funding.

It is our declared goal to visibly promote sustainable policies and means and make them achievable for the film and television industry and its funding agencies.⁴²

The 2020 report represents quite a step forward from the previous one, dated 2017, as it is more prescriptive, demonstrating that climate change is beginning to be more widely recognised as a key issue for the industry, perhaps prompted by changing EU directives and objectives to become net-zero. Specifically the manifesto, signed by funders, states that funders should consider additional costs required to enable production to be sustainable to be eligible for support. And whilst the 2017 report simply listed tools and resources and reported on best practice, in 2020 the report says that the group's members have agreed on

³⁸ Private conversation with Outlander producers.

³⁹ www.cineregio.org

⁴⁰ https://www.cineregio.org/about_cine-regio/

⁴¹ https://www.cineregio.org/publications/green_regio_report_2020/

⁴² Ibid p4

the need to standardise best practice and establish a common certification scheme. They decided to apply a system developed by the Trentino Film Fund and Commission and develop it as a common tool for use across the group and by others:

*This will ensure that producers will be able to work across regions sustainably and that funds throughout Europe will be able to link their funding and/or investment criteria to a pan-European certification scheme.*⁴³

In the introduction the General Secretary of CineRegio highlights both the urgency and the differences between different countries circumstances in encouraging film-makers and film funds to 'Act Local, Act Now'⁴⁴.

7.2.1 Consultation with CineRegio members

All members of Cine Regio as of 2019 were contacted by email, of which 21 responded and those which seemed to offer an example of good practice were followed up, usually with a phone call.

Examples of good practice tend to include a mix of:

- Free training provided in early stages of the production set up
- Dedicated consultant time to support and monitor productions' sustainability plans
- Certification schemes which can be used to access additional funding if successful
- Accelerated permissions for projects which plan to implement green working practices

Members with notable sustainability initiatives include:

Film Fund	Example of sustainability support
Flanders Audiovisual Fund (VAF)	Dedicated consultant time Developing a planning and environmental assessment tool
Île-de-France Region Film Fund (Ecoprod)	Free training
Film Fund Baden-Württemberg (MFG)	Funds to support a green consultant
Sardegna Film Commission Foundation (FSFC)	Showcase strategies for eco sustainability.
Filmförderung Hamburg Schleswig-Holstein (FFHSH)	Seminars and sustainability events
Trentino Film Fund, Wallimage	Certification schemes
Film Paris Region	Additional funds available for films which meet environmental standards

⁴³ Ibid p5

⁴⁴ Ibid p3

It is worth noting that the VAF approach, where a consultant is allocated to each production to develop an environmental plan backed up by solid data collection, seems to have resulted in decreasing emissions from 83 to 73 tonnes per production⁴⁵.

In addition a number of members are planning to introduce the common Trentino-based approach, including Filmforderung Hamburg Schleswig Holstein and the IDM Film Fund & Commission (Italy) from April 2020. More details of all of these initiatives are available in the Green report 2020.

Carbon calculators

The number of film-specific carbon calculators available online has risen sharply over the past five years as interest in sustainable film production has increased. These tools calculate the weight of carbon emitted by a production. Production staff input data into the calculator according to various production activities, e. g. energy used in studios, fuel for generators, travel, and materials used. The calculator defines the specific overall tonnage of carbon emitted in the physical production and during post-production then produces a series of charts showing the resulting carbon impact. This provides a benchmark for the production, so the next time a program episode or film is shot there is a level of achievement for them to beat. The production may receive its carbon calculations in some of the following ways:

- the total amount of CO₂ emitted over the course of production;
- the amount of CO₂ emitted per £100k of budget; and,
- CO₂ per production hour, a critical figure. For example, a TV series or continuous drama can chart its performance from season to season.

It's key that all stakeholders be engaged in the process to make the carbon tonnage of emissions as low as possible, so all crew, cast, and supply chain personnel should be aware of the measures introduced to help make the shoot more sustainable. This effort needs everyone on board to make it a success. There are several members of the Cine Regio network that offer the use of a carbon calculator, including in France (Ecoprod), Belgium (Flanders AudioVisual Fund) and Germany (MFG Baden Wurttemberg). This is in addition to Greenshoot and *albert+* in the UK, and PGA Green (Producers Guild of America).

The theory is that, as the number of carbon calculation tools increases, awareness likewise spreads and more productions adopt sustainable practices, which leads to the ultimate goal of a carbon-neutral audiovisual production industry. However there are two problems. One is that the various calculators don't necessarily align with each other: the Green Report 2020 notes that the American (PGA) and UK (*albert*) calculators produced different footprints for Swedish productions, both of which were believed to be underestimates (and compare the charts on [pp32-33 below](#)). The partners in the Green Screen (EU) project will carry out a comparative analysis of existing carbon calculators as part of the development of a European evidence base, and they will make recommendations on the use of appropriate CO₂ measurement tools in different settings.

⁴⁵ Ibid p7

The second problem is that emissions reductions don't automatically follow from emissions calculation, and more specific carbon management planning is necessary to achieve the desired reductions: this is where environmental policies and support and monitoring to ensure they are adhered to is necessary.

Consultant support

Some of the most successful approaches in achieving reduced carbon footprints in screen productions have resulted from regional film funds providing a sustainability consultant to support to the production team. In some cases, the consultant is an established member of the film fund team (as in Flanders) and they work closely with several productions, providing training and support in developing lower carbon methods and resources and the use of tools such as carbon calculators. In two of the German funds, targeted funding is awarded to a production to employ a dedicated sustainability consultant either:

- at the planning/preproduction stage to highlight low emission production methods which bring cost savings (FFHSH) or
- to oversee the implementation of green measures through all stages of production from planning and shooting to post-production, including motivating the crew over the entire course of film production (MFG)

For productions wishing to achieve sustainability certification, a green producing consultant is usually required to assess the application

Certification

Certification systems have been developed by several of the Cine Regio Film funds with variable success. They are usually allied with carbon calculators. In some cases achievement of certification is linked to additional finance from the fund (Trentino), in others the benefit is purely reputational (such as *albert+*). The funding incentive can be relatively weak as the regional funds are often only a small part of the total funding package.

One well established example is the Flanders (VAF) e-Mission label which was developed and introduced in autumn of 2015 and later revised in 2017. The e-Mission label guarantees both that efforts have been made and that results have been obtained in the reduction of energy usage and waste, as well as of the total carbon footprint during the production of a film or TV serial. Points may be earned by implementing different categories of green measures during production in the areas of transportation, energy, catering, waste management, materials recycling, and post-production with a minimum score required to earn the label. As of now, eight productions — five feature films and three serials — have been awarded an e-Mission label because they reduced the environmental impact of their productions.

In January 2017, Austria launched a green producing label for film/TV productions. It acted on the European Ecolabel policy for environmentally friendly products and services which had already been introduced twenty-five years ago. The ecolabel for film is awarded to a specific production instead of a production company.

A key requirement for both systems is the availability of a green producing consultant to oversee all the sustainability measures undertaken by crew members.

Permissions and incentives

Several film funds provide incentives, both practical and financial, to production companies which include sustainability considerations in their application. As yet, we have not come across any examples where this is mandatory.

Many of the film funds are also linked to management of locations. Locations which are in demand are often in environmentally sensitive areas which require permissions for filming to take place. Several funds require applicants for funding to demonstrate a commitment to sustainable practices in order to obtain the required licenses.

Since January 2019, sustainability is embodied in the new German Film Law and a self-declared obligation clause has been inserted in the funding guidelines of the German Federal Film Fund.

7.3 Best practice in North America

In the U.S there is less focus on incentives related to funding and instead a strong collaborative approach has developed based on reputation and reducing costs.

There is an awareness that the US film, television and commercial production industry traditionally consumes vast amounts of energy and unsustainable resources with productions around the world and there is a need to help film and television professionals find the resources and partners necessary to make use of sustainable practices in their productions. Participation is purely voluntary but studios and production companies may increasingly be under pressure to work sustainably as part of their Corporate and Social Responsibility Policies. The following provides some background to some of the more established initiatives.

7.3.1 Producers Guild of America

Resources for sustainable working

The Producers Guild of America has been instrumental in developing the Green Production Guide (GPG) and PGA Green⁴⁶ with primary support from Disney, Amblin Partners, 20th Century Fox, NBCUniversal, Paramount Pictures, Sony Pictures Entertainment, Warner Bros, Amazon Studios, HBO, CBS & Participant Media.

The Green Production Guide features a searchable database of vendors with information about their green products, services, their production experience and what locations they serve. PGA green provides free tools to monitor emissions, resources and waste, provides advice on best practices with checklists to measure and track sustainable initiatives and a tool to optimise use of wood.

The GPG also hosts information on environmentally-minded film commissions, Sustainability Reports from recent productions, links to a variety of supporting organizations and industry leaders, as well as a catalogue of Green Production Best Practices. Although much of the industry is focused in LA, participants and users of the Green Production Guide are spread across the USA.

⁴⁶ <https://www.greenproductionguide.com/>

Sharing good practice in US studios

Anecdotally, the partner companies/studios do work together and share resources and information with one another including Disney, Amazon Studios, 20th Century Fox, Sony Pictures, Warner Bros, NBC Universal, HBO, CBS and Netflix.

This is in contrast to the UK where the studios have not yet developed a collaborative approach.

Recommendations

In a conversation with Jennifer Lynch, Head of Corporate Social Responsibility at Paramount Pictures in LA, on practices in their studios, she described their mentoring programmes where they educate their employees in 'lunch and learn' workshops, held during lunch hours, which could incorporate environmental issues.

She highly recommended competitor studios working collaboratively with one another so that freelance crew that move between the production companies are working with the same policy across the board - it makes it easier for everyone.

7.3.2 Other initiatives

- *NYC Film Green*

NYC Film Green is a voluntary program run by the Mayor's office in New York that '*enables productions engaging in environmentally-conscious practices to apply for and receive recognition for their efforts.*'⁴⁷ It claims to be the only sustainability initiative for the screen industry in the United States administered by a government agency. It uses the PGA resources and provides a green vendor guide and sustainability training materials for cast and crew.

- *Materials reuse*

Ecoset in LA have been running for more than 10 years as a for-profit set up and have recently moved from 5,000 sq feet to 50,000 sq feet premises.

Revenue is raised from charging production companies for taking away their waste materials at the end of a production, which is then offered free to anyone who wants it (via their 'materials oasis' the non-profit aspect to their for profit business), including other productions, students, local residents etc.

- *Earth Angel NYC*

Earth Angel NYC⁴⁸ is a consultancy based in New York and Los Angeles providing services to manage the environmental impacts of productions in film and TV as well as theatre and other forms. It too works using tools such as the Green Production Guide.

- *Greenslate*

Greenslate⁴⁹ is an accounting and payroll software package for the screen industry that incorporate and tracks environmental impacts.

⁴⁷ <https://www1.nyc.gov/site/mome/industries/nyc-film-green-home.page>

⁴⁸ <https://www.earthangel.nyc/>

⁴⁹ <https://gslate.com/green-initiatives/>

- *MBS Media Campus*

MBS Media Campus⁵⁰ is a studio outside LA which, thanks to pressure by James Cameron, is greener than most, generating at least some of its own renewable electricity, recycling set materials on-site etc. It has successfully won business from major production studios such as Sony because it complies with their environmental standards, demonstrating that providing the right services and facilities can attract major producers:

Sony's green team came to the lot to check it out and make sure we were in line with their guidelines. It was very helpful that we'd already put in practice a lot of these things.

*MBS Executive Vice President Mike Newport*⁵¹

7.4 Conclusions from this section

The publication of the Manifesto and the more prescriptive approach adopted by the CineRegio Green subgroup reflects the increasing recognition of the importance of climate change to the screen industry in Europe.

As many independent films produced or filmed in Scotland are likely to be co-funded by European funders it is important that any approach adopted by Scottish Screen is aligned with these developments in Europe.

The challenge of aligning different schemes and carbon calculators has been recognised by both the CineRegio Green subgroup and the EU project Green Screen, and should have bearing on any decisions taken on approaches for Scotland.

Scottish Screen may want to consider adopting the Trentino Film Fund's T-Green certification scheme, which is being widely used in Europe.

American productions filmed in Scotland are likely to use the PGA's Green Production Guide and PGA Green, which doesn't quite align with *albert* or the T-Green scheme.

The Flanders Film Fund (VAF's) approach, with a dedicated consultant working with each production to develop and monitor a tailored environmental plan, seems to be delivering real emissions reductions.

⁵⁰ <http://mbsmediacampus.com/>

⁵¹ <https://www.mnn.com/money/green-workplace/stories/when-james-cameron-says-green-hollywood-studio-says-how-green>

8 Sources of emissions in Scotland's Screen Production industry

GHG emissions include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and chlorofluorocarbons, which are generally measured in units of carbon dioxide equivalent (CO₂-e) and largely result from burning of fossil fuels.

There is currently no calculation of the greenhouse gas (GHG) emissions of the screen production industry in Scotland but the main activities which cause the emissions are travel and transport of materials and people; energy use for electricity, heating, catering etc, including through suppliers like hotels, restaurants etc; and disposal of waste, including food waste, set and props. If emissions are calculated by consumption rather than production, the purchase of materials and goods should also be added, and in large drama productions, for example, this can be a large proportion of the total.

From our research we have two sets of figures for carbon emissions from screen production: from VAF, where the figures relate to drama films and TV series; and from BAFTA where figures relate largely to drama TV series.

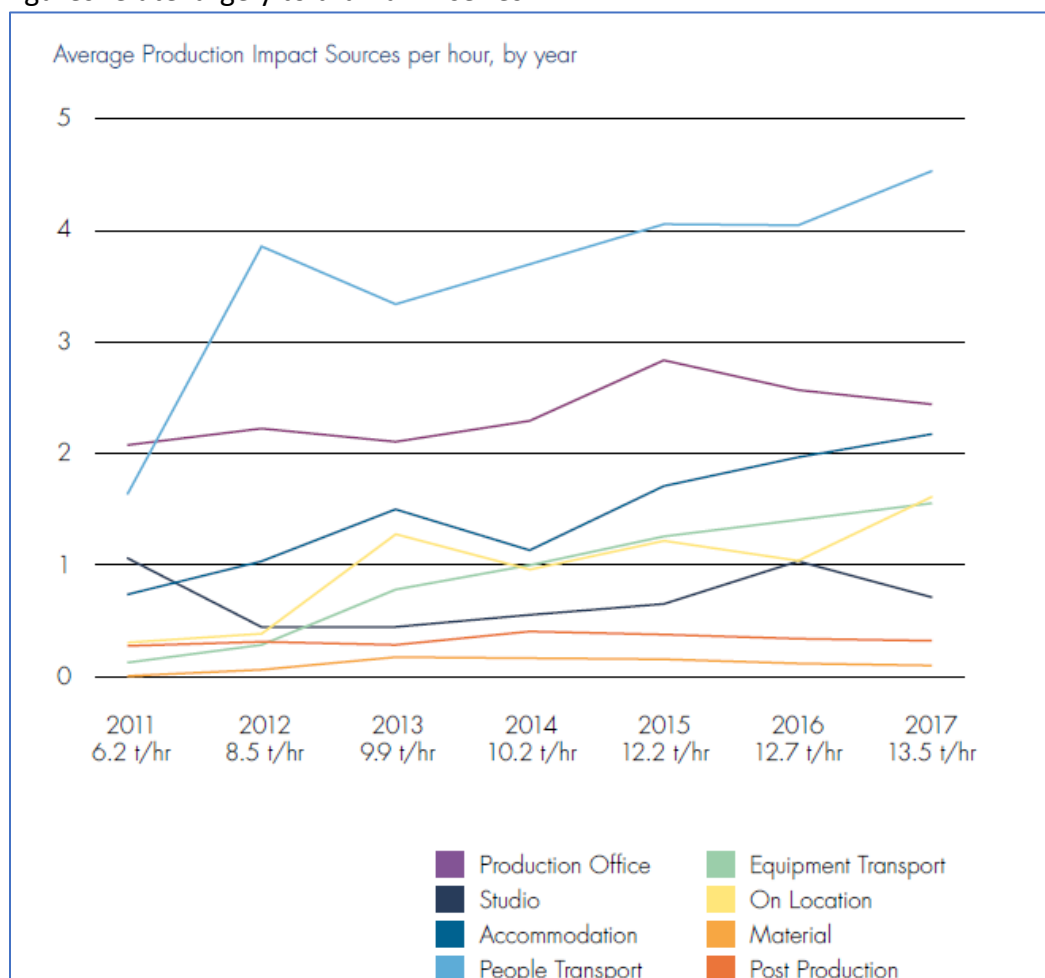


Figure 1: GHG emission sources average/hour of programming, from the BAFTA albert report 2018

The data is provided (in a publicly available form) in very different ways but it is clear there are some significant differences:

- In Flanders materials cause around 30% of emissions/production, whereas for BAFTA materials caused roughly 1.5% of emissions/hour of produced material in 2018.
- Similarly in Flanders post-production emissions accounted for 14-19% of total emissions, whereas for BAFTA the amount in 2018 was roughly 4% of the total
- The Production Office accounts for roughly 18% of the emissions in BAFTA's calculations, whilst the Heating and Electricity categories, which may cover similar usage, are around 4% in Flanders
- In both cases, transport of people and goods accounted for a large proportion of emissions (40% in Flanders and roughly 49% in the UK)

The difference between the materials emissions in the two countries is significant and could be relevant when planning for the Scottish industry. It may be due to the nature of the production: BAFTA's work covers many TV productions made by major companies, including long-running series, where costumes and sets will be re-used, whereas films are always one-off and so require new sets, props and costumes. However the data from Flanders shows that materials emissions relating to TV series are similar to film.

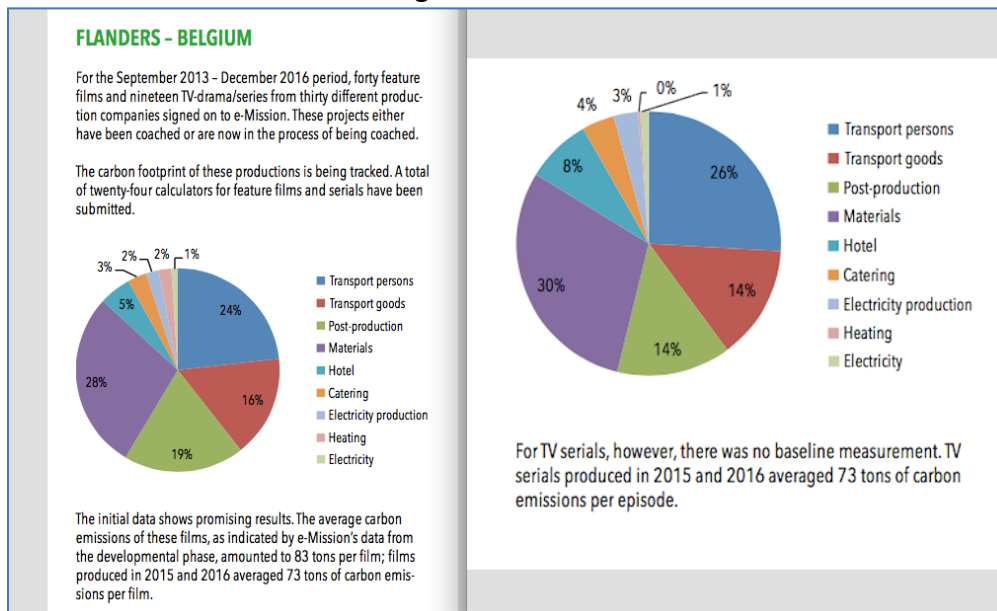


Figure 2: GHG emissions data from Film Flanders percentages, copied from the Cine Regio Green report 2017⁵²

It may be that the emissions calculation methodology is different. While more data is needed about the nature of productions that are expected in Scotland, the member of our research team who works extensively within the UK industry is clear that there is a great deal of waste material disposed of by the industry and is confident that a means to address this issue is an important part of the solution. This is borne out by our conversations with Re-Set Scotland (see below).

The differences between the two figures for other categories are not as stark but are still substantial and demonstrate the need to know the specifics of the industry, as individual productions but also local circumstances and practices will differ. For example, distances to rural locations in Scotland will be much greater than in Flanders or England, and less local

⁵² https://www.cineregio.org/publications/green_regio_report_2017/

accommodation may be available. If a large proportion of films and series are made in English cities, but more rural locations are used in Scotland this would result in more transport. England is currently better served by set recycling services, particularly in the main production centres of London and Manchester, whilst Scotland's is only just getting going, so materials emissions here may be higher.

Moreover, whilst in Flanders there was a drop in the emissions/production between 2013 and 2016, in the UK emissions have consistently risen since 2011: the *albert* manager acknowledged that despite all the work they have failed to reduce emissions. He said this was partly explained by the increase in production values, but also thought that the issue was a system problem rather than one that could be addressed by working on an individual element: productions, infrastructure, facilities companies, studios all need to be part of it.

8.1 Conclusions from this section

Greatly improved data are required about the actual greenhouse gas emissions related to Scottish screen production before a detailed response can be planned. However, transport of people and materials are clearly major sources of emissions and will to some extent be within the control of productions. The production office is also a significant source, but facilities companies such as office providers and the studio when it comes on stream will have more control and impact here.

9 Departments and Roles in the Scottish Film Production Industry and their role in reducing emissions

We wrote to a range of individuals working in Scotland and the UK to ask them about both their experience of increasing the sustainability of the screen industry and what they thought could and needed to be done. At first we struggled to some extent in getting much response, perhaps reflecting the low level of commitment by the industry to environmental sustainability. However, when the COVID-19 pandemic closed down production more people suddenly became available to speak to Mairi Claire, who interviewed 19 individuals following an email introduction; this upsurge in responsiveness suggests that there is more interest than we thought, but that people only feel able to focus on sustainability when they are less busy. This is relevant, since if the environmental sustainability of the industry is going to be increased it will be necessary for it to become a higher priority for people at all levels. This section outlines the findings from these interviews and email exchanges.

9.1 Producers

Producers are perhaps the most important agents who can influence the environmental sustainability of a production and reduce its carbon emissions. They are ultimately responsible for the budgets, scheduling and working practices associated with any production and are the earliest people working on a production, meaning they can influence the whole process. Creative Carbon Scotland knows from our work with the subsidised arts sector - and there is widespread acknowledgement across the carbon management world outwith the cultural sector - that buy-in and drive from the highest level in an organisation, and a focus on carbon management in advance planning, are crucial factors in the development and implementation of any effective carbon reduction plan.

Producers in the film production industry can be individual or corporate and in Scotland there are four main categories:

- **Indigenous productions** Scottish-based productions tend to be produced by small, independent companies producing one-off projects and individuals play a large part in setting the standards. This group is most likely to seek Screen Scotland funding and support and so can be influenced by funding conditions.
- **Incoming productions** Many European incoming productions will be funded by a public funder similar to Screen Scotland or a broadcaster, which may increasingly require their own environmental standards to be met. Although American productions may be commercial productions that are not seeking funding, the main studios apply the standards from the [Producers Guild of America](#) across their portfolio of projects, and these will include environmental standards. Studios often employ Environmental Co-ordinators for projects who work to ensure the studio's standards are met on their productions.
- **Broadcast content** Most at least of the main broadcasters also have environmental policies which they apply to productions that they fund. In Scotland these mainly work through the *albert* consortium. In-house productions have standard procedures to apply; smaller producers who are commissioned by the broadcasters may find it harder but may still have to comply with *albert* procedures.

- **Commercials** Producers of commercials are probably least likely to have to comply with any corporate standards and as they do not seek Screen Scotland funding they may be least influenced by Screen Scotland's standards.

In our conversations with producers based or working in Scotland the following themes arose.

9.1.1 *The value of albert*

There was a range of opinion amongst producers about the value of *albert* and whether it had helped change practices and make sustainable working easier. More than one producer thought it was a box-ticking exercise:

'What's put me off in the past is 'what's your carbon footprint, and how many emissions etc' to someone who is a busy producer, who has not got my head around all of this, and don't know how to do it, I just kind of 'yes, yes, yes'.

Producer 1

'one of those processes like a lot of what the broadcasters require... It often felt like just another bit of the paperwork that you had to deliver, not something that you were massively considering as you made the project. It was [seen as] something else that you had to do to get the cash to flow.'

Producer 3

Although these comments sound critical of *albert* it is perhaps more that the training and the process of completing the *albert* paperwork didn't sit happily with the creative element of the producer's role; this needs to be taken into account. At Creative Carbon Scotland we have had to work hard to make our Carbon Management Planning process align with the working practices of those who complete the spreadsheets etc, people who invariably didn't come into the arts to count carbon. To build support for a focus on increased sustainability Screen Scotland will need to ensure that any processes feel appropriate to those using them and provide plenty of the right sort of support and training that emphasises how it can increase creativity and opportunity rather than feel like a 'tick box exercise'.

Having said this, Producer 3 also felt that *'the albert requirements are not onerous: you can box tick and move on'*. However he also argued that *albert's* general approach, which needs to cover all kinds of production, is problematic: *'you can't have a one-size fits all'*.

Another was more positive about the general utility of *albert* but felt that it focused on productions rather than the other elements of film-making:

'I've used it across different [sorts of] shows and it captures what it needs to. I think one of the things is that albert is limited to productions – it focuses very heavily on the production process, and not everything that goes on around it. You know, the production office and its day to day running, you have to implement that yourself as a company and be interested in doing that to make a difference.'

Producer 2

Producer 1 also had concerns with the way the *albert* carbon tracking system is framed:

I don't relate to language like that. ... I've always tried, first off, to get local crew, and local directors, and local this, and local that first. And I've worked internationally, I've

worked all over the shop. So I try to use local resources when possible – that’s how I interpret sustainability.’

Producer 1

9.1.2 The need for a whole-system approach

The most engaged Producers emphasised the integrated nature of the industry, and that focusing on productions specifically missed out the other elements that support them: the suppliers, from equipment hire to transport; the facilities companies that provide post-production services; even the office spaces that companies work from.

There’s been no planning as to where we’re based. Like for making the underground accessible and safe for us to get to for our workforce, especially in the winter. ...It’s not just as simple as saying ‘look, there’s an empty site, let’s attract people there’ and then not provide them with any framework or facilities to help them to work sustainably.

Producer 2

Every week of every year there are lights that are being transported up from the south of England. Things like that, we haven’t got all of the resources that are in place to enable us to be functioning as environmentally friendly as we can.

Producer 2

[While] diversity is something that everyone is engaged on, environmental impact is something that some people got stuck on, simply because there is a limit to what some production companies could change.

Producer 3

Coming at the same point from a different angle another producer argued that Screen Scotland could help by emphasising the need to green all aspects of the system in its policies and conditions for support for incoming as well as indigenous productions. This could help build the market for more sustainable supplies and services and support the local industry:

If there was a sustainability policy in terms of hiring crew, and facilities companies, you know like electric car manufacturers, and set designers, costume designers ... Screen Scotland could have a robust set of terms and conditions for incoming productions... As a [sustainability] strategy, because then, they’re not flying people up, to do costumes and to do set design, or to do this, or to do that.”

Producer 1

Producer 1 also emphasised the challenge of finding sustainable suppliers in Scotland, which made it hard to achieve the higher environmental standards that *albert* demands:

It’s really hard when you’re working with criteria such as ‘are you using carbon neutral transport?’ Well, there’s not that many electric taxis in Glasgow yet. You know, in comparison to London where they are rife and you do have a choice, I think that’s one of the things that limits us.’

Producer 1

These comments echo those of one of the Location Managers:

'Across the board, none of them (car hire companies) have electric cars that they rent out.'... In Scotland, we do have a lack of suppliers [providing services to reduce carbon emissions]. We really lack strength and depth in terms of facilities.

Location Manager 2

Overall these comments point to the need to increase sustainability throughout the system, rather than focusing on the productions alone. There's a risk that applying pressure to production companies and productions without building a 'scaffolding' around them of services, facilities and trained freelancers will only alienate the companies. Addressing this need, the *albert* consortium has begun to work with studios in London to bring down their emissions, which individual productions can't affect; and [Film London](#) is investing in ways in which location managers can plug into mains electricity rather than hiring carbon-intensive generators.

9.2 *Locations and Location Managers*

Scotland's unique locations both in terms of built environment and natural settings are one of the factors attracting external productions. Screen Scotland provides advice to productions seeking locations alongside the 20 [Film Offices](#), mostly local authority-based, listed on the [Screen Scotland website](#).

9.2.1 *Film Offices*

We contacted all the Film Offices with an email questionnaire and followed up the nine that replied with a telephone interview. Overall there was very little focus on environmental sustainability, with most of the Offices being part-time and lacking knowledge about the frameworks that exist and possible actions they could take.

- Only one Film Office said that they worked with producers to reduce their carbon emissions: this included seeking ways to limit the numbers of vehicles being used; and to identify three actions to reduce emissions.
- Only one Film Office was aware of any work that producers were already taking to reduce emissions, and their response was that they knew of 'a few' producers who were doing so.
- Barriers to doing more mentioned by a range of Film Offices included:
 - a reluctance to impose conditions on producers, which might mean the business went elsewhere;
 - a shortage of staff time and knowledge;
 - a lack of knowledge of what productions are actually doing, other than in areas such as parking or using Council property; and
 - their contact being with location scouts rather than producers, and so their knowledge of and influence on the actual production activity being limited.

When asked what resources or support they needed to help them support producers in reducing their productions' carbon emissions most of the Film Offices said they needed some clear information, possibly a toolkit of basic actions and training to help them apply it. There was a strong feeling that a central approach, rather than individual Film offices developing their own guidance, would be helpful. One respondent suggested that the Scottish Locations Network would be a useful forum with which to work on this.

9.2.2 Infrastructural change

Some locations are more regularly used:

1. Park House Business Centre in Glasgow – former Scottish Water HQ – is rented out often for filming and can be dressed as all sorts of things. One area is permanently set up as a hospital and widely used.
2. In Edinburgh, King's Stables Road, Regent Road/Terrace, Holyrood, Dean Village, The Botanic Gardens and Charlotte Square and in Glasgow Kelvingrove Park and gap site in the Merchant City are often used. No power is available in any of these.
3. Glencoe Ski centre – lots of good wild country.
4. The car park at the top of the Rest & be Thankful (A83 in Argyll).

Film London, through the [Green Screen Interreg project](#), is working with the engineering consultancy Arup to explore the potential for building grid electricity supplies into suitable points near sites that are regularly used for filming so that base units (providing the back-up services such as catering, wardrobe, make-up etc) can plug into the grid rather than use generators, providing much cheaper electricity and reducing emissions by an estimated 97%⁵³. Such an approach may be suitable for some of the more regularly used sites in Scotland. (The City of Edinburgh Council's City Centre Transformation programme is providing similar facilities in George Street to permit festival venues to plug into the mains.) However it is worth noting that the London plan is costing £1m and London hosts some 14,000 filming days/year, so is working on a much larger scale than anywhere in Scotland, making the investment worthwhile.

9.2.3 Location Managers

Location Managers are a key contact point between the location and the production. In a meeting with a leading Scottish location manager they expressed a desire to work more sustainably, and felt that this would be quite widely supported, but they lacked environmental sustainability expertise and support, weren't sure where to find it and felt that currently there is no recognised approach which would help create a clear requirement for action from those they worked with and for. It is clear that the location manager could influence sustainability on location, as they deal with issues such as transport, power provision and waste. Many of the desired locations are relatively remote and transport and power provision are difficult to provide in sustainable ways. Location managers also recommend or contract certain suppliers such as transport and waste contractors, so have an important role to play in encouraging or requiring environmental standards and practices to be applied by contractors on location.

Another Location Manager was keen but lacked knowledge.

Another focused on the lack of planning that productions undertake and felt that local authorities could insist on producers planning further in advance and therefore being able to develop stronger environmental plans:

You turn around a location in minimal time ... and then you have to make certain sacrifices in terms of your preparation, and that's when things like the environment become secondary. It

⁵³ Interview with Daniela Kirchner, Film London, Thursday 18th July 2019

means you can't do the adequate prep in a short turn around for things like the correct waste disposal and making sure that there are adequate toilet facilities.

Location Manager 1

This planning also applied to budgeting and a lack of enforcement by local authorities:

The reason that the budget is so tight in the first place is that they haven't submitted the right budget in the first place. If there was a standard [requirement] to say 'you cannot make a production without [enough] money to cover legal requirements such as proper waste-water disposal and waste material disposal then [you won't get a permit to film].

Location Manager 1

One location/production manager has taken it upon themselves to pay the cost of offsetting each production that they work on:

We offset all of our productions. We work with a company called 'Carbon Aware Productions'⁵⁴. The way it works is that we do a shoot, we send him the call-sheet ... he works out the volume of CO2 that we've emitted, and then he says that we need to plant X amount of trees to offset. So we pay to get those trees planted – it's like £25 a tree. I normally do commercials, and for a standard sized commercial shoot you're normally looking at about 2 – 3 trees to offset the entire production.

...The client very rarely wants to pay for this, but more and more we have managed to get them to start chipping in for this.

Location Manager 2

Two of the location managers spoke about a general reluctance to change and one identified a means of addressing this:

I think that the film industry is guilty of saying 'well this is the way that it's always done' and ... there's not any time for self-reflection on that

Location Manager 1

... A lot of crew still don't buy into it, and that's the biggest challenge.

... I can tell you now, that if you [applied environmental sustainability conditions to] the tax credit, or any funding, then you'll find that people will start straight away making changes.

Location Manager 2

They also understood that this might work better if it was framed as an incentive rather than a penalty:

Sometimes it doesn't matter what you throw at a company, they are looking for a location elsewhere. But if you're pitching on a job and you say 'If you come to Scotland, as a company, we are part of an affiliation that has to ensure that this production is fully sustainable to X / Y / Z. If we tick all the boxes at the end of production, we get a tax rebate of the tax on the production and as the production company, we get 50%, and as the incoming production, you get 50% also....

Location Manager 2

9.3 Environmental Co-ordinators

The major American studios employ Environmental Co-ordinators to apply sustainable practices on their productions, using the Producers Guild of America's Green Production

⁵⁴ <http://www.carbonawareproductions.com/>

Guide and associated tools. Some of the Co-Ordinators have sought to raise their status from the person who did the work themselves – such as laying out the recycling bins – to being someone who co-ordinates the work of others. In some cases they may operate as a consultant, in others more as a separate department alongside the others on the unit list: in both cases as non-specialists in the different crafts they rely on the detailed knowledge of the other departments to address sustainability issues. Mairi Claire conducted a very useful phone meeting with one, from which we have quoted extensively because of the relevance of their role, covering the following points. However it should be noted that Mairi Claire's own experience working on big American productions is that despite the presence of an Environmental Co-ordinator, it can still be difficult to implement sustainable practices for all the reasons we have described above and below. Moreover in a private conversation with one Producer on a studio production with an Environmental Co-ordinator attached they reported that the environmental ambitions seemed to be mostly limited to waste reduction with little focus on energy consumption, travel etc. Having an Environmental Co-ordinator is not a panacea.

Research

Some of the work is a research-based activity, talking with other people in the industry (about what suppliers and resources are available)... It can be quite simple to develop relationships with companies to learn about new technologies.

[This person needs to be] not only responsive to issues as they come up through the production process, but also proactive – working ahead of legislation.

Support from senior management

The most important thing for success is, who are they getting the support from? And [does it provide] the authority that they [need] to be able to implement on a production?

I guess the most support that I've found that I've had is ...to have some sort of authority to be able to say to a coordinator or an HOD, 'the producer doesn't want you to do this', or 'the studio executive has told us that we shouldn't be doing that.'

Some producers have come to me and said, 'Let me know what you're doing, and what you need, what support can we give you?' and there's a couple of producers I've been working with who, the very first day that I started they pulled me into their office and we had a meeting about how we were going to address sustainability of the production. So you do find producers that are interested, as well as some of the producers who don't know what albert is.

albert

The main problem with albert, and it seems as if they are acknowledging it now, is that it has very much been a tick box exercise ever since they started. They really just work with education, but ... it's very simple to actually gain the certification. I guess ... because a lot of the TV companies won't actually buy anything unless it's albert certified, and so they have to have a level of ease of being able to use it....

I think if you're not in the TV world then you've got no chance of knowing them unless you're interested in sustainability.... But they really have no teeth in the film world.

The importance of being involved from the very beginning

I think someone who's actually available to come on board right at the beginning of a production is crucial, because where we can really fall down on is that we usually get hired ten to twelve weeks in (to the production prep process) and by that time, construction are already eight – ten weeks into the construction mode. Obviously, the Art Department start way before us, and even before construction, so... I've always pushed for it that [their employer] should have a sole environmental person who works year round for them. It would mean that they could be a face for the production as soon as it starts, and soon as every individual department starts, they'd be able to say 'this is what we expect from you, this is what we've seen in the past, and this is what we'd like to do on this production.'

So, yes, I think for Screen Scotland, to have someone who's in a full time role who can approach productions just as they're starting up and saying 'these are the guidelines that you should be adhering to', and 'this is the legislation that you have to adhere to,' and 'this is what you can do to make yourself achieve better goals.' That would probably be one of the biggest wins, I think.

9.4 *albert training for individuals in the Screen industry*

As well as the producers noted above we heard from many other respondents from all areas of the industry who had undertaken *albert* training, but the overall impression was that the training doesn't provide detailed and practical advice that industry professionals can immediately use in their work:

'albert doesn't work at present: it doesn't provide tools, examples of stuff you can use directly in your work.'

'It seems patronising to provide all the basic climate change stuff, but then doesn't allow enough time to cover the practical details'

'People want to be green, but don't know how'

'There's no feedback – what's working, what isn't'

'It lacks guides and tools and resources'

'The first part was very interesting – new knowledge. But the day felt rushed. The group had different levels of knowledge, were from different areas of the industry (factual, drama, TV and film etc) and were of different levels of seniority within it.'

'The trainer didn't know enough about Scotland – too many examples didn't apply to Scotland or cited suppliers that weren't relevant. This meant that people switched off, because it wasn't relevant to them.'

'Too much why and not enough how and there was no way to action it – they gave the example of a lipstick with 30 components, but no clarity on what to do about that, if the director wanted a lipstick!'⁵⁵

Various respondents, anonymised

More than one respondent reported feeling overwhelmed by the problem, without being provided with enough practical advice to start addressing it, resulting in their giving up. One said they felt that *albert* places too much emphasis on the individual, whereas the issue is more about the overall industry practices, over which individuals have little control or agency to bring about change.

One respondent wondered whether a more Scottish course would be more effective, citing local suppliers, identifying local challenges and practices and providing examples from local productions.

Our respondents also reported that sustainability is not built in to projects, so that although an individual may have had *albert* training, there may be very little co-ordination on a production or a location, so that relevant facilities and processes aren't available, there is no-one setting the sustainability agenda and there isn't the time or budgets to apply the training. Where someone senior enough wants to apply sustainable practices they may do so, but it depends very much on individuals. Creative Carbon Scotland's own experience of sustainability work, both in the subsidised arts and in our limited experience of the *albert* training, is that such training tends to be first taken up by relatively junior staff, and that those in charge of planning, budgeting and scheduling, who are more senior and who have the power to implement change, are not those who attend. Many respondents argued strongly that Production Managers, Production Accountants, Location Managers, 1st Assistant Directors and Producers, who are all involved in the early stages of developing productions, needed to be trained and bought into the project.

The situation is better on productions funded by the BBC and other core *albert* consortium members, which have committed strongly to the scheme and where an institutional approach has enabled more sustainable practices to become established. One respondent noted that the core institutions are very invested in *albert*, which is in effect the industry standard if only because there is no other. That respondent advised against reinventing the wheel with a different training approach.

9.5 Services

All the Location Managers quoted above focused on the lack of low-carbon facilities and services available to them in terms of transport, mobile energy supply and catering.

...If you don't have the infrastructure, then you're struggling from the outset... There's only so much that you can do, even with good intentions, as the supply chain up here just doesn't allow you to effectively implement everything.

Location Manager 2

⁵⁵ Quotations from interviews with various respondents

9.5.1 Transport

Transport is a significant issue for filming in Scotland as often the locations are chosen for the landscapes, which may well be remote, and the distances are great. Location filming requires a lot of vehicles from sanitation to catering to power to artist and crew transport. We spoke to two of the widely used transport providers to find out the issues they faced:

- Distances were greater than current electric vehicles will easily cover, potentially even with more charging points being available:
 - *‘Drivers can easily cover 200 – 300 miles per day. Unfortunately the technology is just not where we want it to be (to cover those distances), as far as I’m concerned ... If we had more charging points, and the range was bigger, and the charge was quicker, then, yes, it would be fine.’*

Transport Provider 1

- *When companies come to me, particularly American companies, asking ‘Do you have electric vehicles, do you have alternative fuels?’ And I’ll say, yes, that’s fine, do you want a 140 mile range, which is essentially Glasgow and back with a little detour per day, and an eight hour charge time, or do you want a vehicle that you can send to London in 20 seconds notice? And so they opt for the latter. Unfortunately the technology is just not where we want it to be, as far as I’m concerned.*

Transport Provider 1

- Time is also at a premium in production, and the downtime for charging electric vehicles may be prohibitive: *The drivers are working 14–15 hour days, so for them to then go and charge an electric vehicle, it would not be that easy.*

Transport Provider 2

- The trucks required in the industry are too heavy to operate with current electric motors.

Judging by Transport Provider 2’s comments, there is some demand from American studios at least for environmentally sustainable transport. That transport provider already supplies customers with mileage reports for their carbon calculations as a matter of course. They also argue that better planning, with more people travelling together and fewer unnecessary moves, would reduce fuel use. However, this wasn’t within their remit and relied on the productions (presumably those who draw up the schedules and budgets as well as location managers) taking action:

I don’t think any supplier or retailer will necessarily incentivise the industry, it’s the other way around. If the industry demands something, then the suppliers will supply it.

Transport Provider 2

9.5.2 Power supplies

Another key issue on location is mobile power supply: particularly in remote rural locations but surprisingly also in some urban locations no mains power is available and mobile generators are required, running off diesel, and so very carbon-intensive. These will be used for everything from space heating to lighting and so the diesel consumption can be

significant. However, there are no realistic suppliers of lower-carbon equipment, certainly in Scotland and maybe yet in the UK. We heard from a Location Manager on Outlander about this issue. Although they regularly use the same locations grid access can still be hard to achieve. Base-level supply for security and CCTV requirements during down-time can be covered by solar/diesel/battery hybrid supplies but when the site is active construction, lighting etc require too much power, so they need to supplement the hybrid unit:

We'd looked at Nixon Solarpod system⁵⁶ as well as a bespoke system through a company recommended by our generator supplier. As far as our operational requirements are concerned we've tried out various lighting options over the past season, however we've yet to find practical site generator options that meets the flexibility and reliability we need to service a large scale production on location in rural Scotland. The lighting solutions we've tried are rechargeable battery tower-lights but found them too heavy, with not enough run time before having to extract them for recharge via site generator; Hydrogen Fuel Cell tower lights⁵⁷: these in principle are the best option but we found reliability inconsistent, particularly in low temperatures and costs can creep up with heavy use.

Location Manager, Outlander

They have also been investigating Diesel/Battery Hybrid units as this would overcome the charging issues.

Panalux⁵⁸ do supply lighting lower carbon equipment which is fairly well used in the industry, as well as a hybrid generator but this is still in its early days of development and is currently only rated at 40kw. They are planning to develop generators offering 100 kw and 150 kw, but productions can need up to 180 kw total.⁵⁹

This therefore is an industry-wide issue, not particularly a Scottish-supplier problem. It may be expected that in due course the supply of sufficiently powerful equipment becomes available.

9.5.3 Catering

At the time of writing, no location catering companies had responded to our requests to speak to them. One or two facilities providers did however comment on the issue of food waste disposal on location.

9.5.4 Waste and recycling

Waste is another issue both on location and in studio production. Apart from catering waste, which can be made the responsibility of the provider and is highly regulated, filming uses a lot of materials for set construction, set dressing and wardrobe, most of which are then consigned to landfill as time is tight at the wrap. A range of companies in the UK are working on this problem. Generally they aim to re-purpose, re-use or recycle materials.

⁵⁶ <https://www.nixonhire.co.uk/hire/p/solar-pod>

⁵⁷ <https://www.tcp.eu.com/8/238/ecolite-th200-hydrogen-mobile-lighting-tower>

⁵⁸ Hybrid generator: <https://www.panalux.biz/equipment/panalux-h40.asp>; Sonara LED light: <https://www.panalux.biz/equipment/panalux-sonara-44.asp>

⁵⁹ The CineRegio Green Report 2020 p19 notes that a German company produces a 176kw zero-emissions battery-powered energy source

The Scottish Government and Zero Waste Scotland have a focus on the Circular Economy⁶⁰ which aligns with the work of organisations such as the Ellen McArthur Foundation. The Waste Scotland regulations⁶¹ effectively seek to eliminate anything re-usable or recyclable from the waste stream altogether. These regulations will add costs to the screen industry in due course if not complied with, so finding ways to reduce waste in the industry has financial as well as environmental benefits. Meanwhile materials which cannot be used by other productions are often re-purposed by smaller cultural and community organisations, reducing overall production and waste and reducing the costs of those organisations' work, making them more sustainable.

9.6 Art Departments

Mairi Claire, who works in the Art Department field in Scotland, the UK and the US, spoke to colleagues of hers within the industry. There is a degree of re-use going on already, but probably more due to shortage of time than for environmental reasons. There was however agreement from her colleagues that more could and should be done.

Interestingly, despite the PGA standards and the use of Environmental Managers, one respondent had little good to say about American studios' practices:

The American studios are the worst for waste, after a wooden set has been stripped of dressings, they drive a demolition machine through it, smash it completely, drag it outside and burn it on the back lot. Timber is too cheap to re-use in the States.

Production Designer 1

However the same designer said that on a number of films in the UK they had re-used set items within the same film, while another said that it happened even more on TV, which had more sets to build than film; 'a high-end TV show can have a set list of 300 sets for a series' (Production Designer 2). He argued that the prohibitive factor was the cost of storage, particularly when re-using materials from one production for another.

Getting production interested in hiring even short term storage space is an uphill battle, because it costs them money in the short term regardless of the long term / environmental benefits. After the production is over the huge cost of storage long term usually means that most sets are struck unless a new series or sequel is definitely going ahead.

Production Designer 2

This designer had some good points to make about the challenges ahead if this situation is to change:

If storage facilities were established, then they would have to be exceptionally well managed, otherwise they would become so overloaded with stuff that they would be too difficult to use, again time and money are huge factors here....Another possibility would be that sets were stripped back to their basic materials and the materials re-used. This used to happen, but the cost of labour meant that this became uneconomical.

⁶⁰ <https://www.zerowastescotland.org.uk/circular-economy/about>

⁶¹ <https://www.zerowastescotland.org.uk/waste-scotland-regulations>

Finally whilst modern production techniques might seem to make things more sustainable, the carbon costs of all the technology also need to be considered:

Even CGI sets have an environmental impact. Manufacturing all the hardware to begin with uses resources and questionable processes to get the precious metals required. The hardware is frequently discarded and updated. The labour required is huge, and all the power required to run servers is not free either. Going online itself has an environmental impact.

Production Designer 2

9.7 Re-Set Scenery

Addressing these problems, Re-Set Scenery⁶² is a community interest company aiming to provide the Scottish creative arts sector with an environmentally responsible and economical alternative to landfill for its unwanted scenery, props & furniture. It is run by two skilled production carpenters in addition to their full-time jobs at the Royal Conservatoire of Scotland. Their intention is to develop the project into a full-time business and they have received business planning support from Zero Waste Scotland's Circular Economy Business Support Service.

Re-Set Scenery estimates that whilst two thirds of the materials used for construction comes from European sources, which are relatively sustainable, the remainder comes from Asia or the Americas, with concomitant travel costs and emissions and less sustainable production methods.

In brief, Re-Set takes the waste from productions and repurposes as much as possible back into the screen/theatre industry, into smaller scale arts projects, into hospitality and events or, as a last resort, by recycling the materials. Around 60% of the material can usually be repurposed, thereby avoiding the emissions from landfill, reducing the inputs into the industry and saving money in disposal costs. The project is a success at the current scale, but needs investment to take it to the next level, a more reliable pipeline of materials to repurpose (although currently they are having to refuse offers owing to lack of capacity) and a larger set of destinations for the materials. Normalising the approach and increasing awareness of it would address some of these issues.

There are comparator companies elsewhere in the UK, which in effect prove the concept, but none that competes locally. Most are in London or the North-west of England, where there is a large production industry. The *albert* supplier director provides a range of examples. Dresd, [mentioned above](#), perhaps provides an example of what Re-Set could achieve in Scotland with the right support and premises.

⁶² <https://www.creativecarbonscotland.com/resource/case-study-creative-and-sustainable-re-use-with-reset-scenery/>

9.8 Studios, workshops and office space

Screen Scotland provides directories of studios and workshops and office spaces⁶³. A quick review of their websites and brochures suggests that none of these currently provide information about their environmental sustainability or set any requirements for users of their facilities.

9.9 Conclusions from this section

Producers are essential to increasing the sustainability of the Scottish screen industry but they are unable to change things on their own: they need to be able to call on sustainable craft services and suppliers, and some areas such as sustainable transport will rely on changes to the wider development of low-carbon technologies.

Location Managers will play an important role in any carbon management planning process and should be encouraged and equipped to include sustainability in their planning.

There is some support for *albert* but it seems widely perceived as a ‘tick box’ process and doesn’t capture the whole production process. A more tailored approach for Scotland, providing details of local suppliers etc, would be more helpful. More senior staff need to be undergoing training and its application across a whole production is important.

Producers are dealing with the ‘theory’ – estimating and then calculating carbon emissions using *albert*, which they find a bureaucratic business, whilst the Location Managers (and some of the suppliers) are dealing with the practical – actually putting changes into practice – and finding that hard for quite other reasons. This suggests a need for different training and support, but also indicates a mismatch between the two groups when it comes to sustainability. The Location Managers could maybe achieve more if the Producers facilitated and/or required it; the Producers might find it less bureaucratic if the Location Managers were more integral to the process.

The role of Environmental Co-ordinator could help address some of these problems, but it is not a panacea.

There is a need for a ‘whole systems’ approach, rather than one working just on productions: the whole system from Film Offices to production hubs to suppliers needs to working sustainably to enable the short-lived productions to be made sustainably.

The Film Offices are not engaged with sustainability and it would be best if there is a co-ordinated approach across the country: the Screen Commission or Scottish Locations Network could support this through development of a Scottish Sustainable Film Charter which the Film Offices could then apply locally.

Some infrastructural changes might be helpful, although this will depend on level of usage of particular locations.

⁶³ See <https://www.screen.scot/about/meet-the-team/screen-commission/studio-and-buildspace>

Some craft services and suppliers could currently be more sustainable, but they may not themselves offer sustainable options unless producers and others demand them.

Other services such as power generation and heavy vehicles are reliant on low carbon technology that doesn't yet exist – although it will presumably come on-stream as time goes by, and the industry needs to prepare for this.

Our research suggests that materials are a significant source of emissions in the screen industry, through production, transport and disposal of the materials. Re-Set Scenery uses a business model that has worked elsewhere and has the potential to reduce emissions in the Scottish industry.

It should be recognised that CGI and other areas of work making heavy use of digital technology have their own carbon footprints and don't provide a panacea: it shouldn't be assumed that a move to digital will solve the problem.

10 Discussion

10.1 Overview

Our research into best environmental practice in the screen production industry in the UK, Europe and America indicates that there are many different schemes which share common characteristics but no clear leader or standard approach to follow. In the UK the *albert* consortium has strong institutional support from the TV companies but acknowledges that it has failed to achieve much on the film production side, and even within TV it has not succeeded in reducing emissions⁶⁴. In Europe, CineRegio has developed a common standard which some of its members are applying and the EU project Green Screen is reviewing the carbon calculators available and aiming to make a recommendation about how to adopt or develop a common one for the industry. Meanwhile American productions tend to use the PGA's Green Screen scheme.

The screen production industry in Scotland is an open and dynamic system, with Scottish based companies and individuals working in Scotland and elsewhere and others coming to work in Scotland from elsewhere. Some elements in the system, such as transport and location power providers, may operate mainly in other fields, over which Screen Scotland has no influence. Independent productions, over which Screen Scotland has most influence through its funding, are dependent on organisations such as facilities companies, over which Screen Scotland again has no direct influence. Productions themselves are temporary, either produced by small companies which may go some time between productions and so would find it difficult to develop consistent approaches; or by larger companies, which may or may not have their own environmental policies. Much of the workforce is freelance and most productions bring together a large group of people who will not necessarily work together again, making changes to practices difficult to normalise. In short, the industry is not a coherent group of organisations working in a similar way that Screen Scotland can effectively or quickly influence using just its funding mechanisms. However the long time-frame set by the 2045 target does mean that Screen Scotland can set in place a long-term strategy.

10.2 *albert*

The role of *albert* in all of this is particularly important. There are clearly problems with the way in which it works and is perceived in Scotland. The training doesn't seem to deliver what participants want and is delivered largely by people from outwith the Scottish industry, who therefore lack the detailed knowledge of the local conditions, workforce, practices and suppliers that could help overcome any shortcomings of the approach. Perhaps accordingly, uptake of the training has not been that high in Scotland.

Producers report that they see the *albert* process as a tick box exercise which releases funding rather than something they buy into, even if they are sustainability-minded: it doesn't seem to help them achieve their sustainability objectives. (It is not clear whether this is peculiarly Scottish perception: Scotland may present more challenging issues in terms of distance, size and quality of supply chain etc than in the centres of London and North

⁶⁴ Conversations with the *albert* Manager and see the graph [above](#)

West England.) Location Managers and suppliers, who are perhaps more in contact with the practicalities of doing things sustainably but aren't completing the *albert* forms, are more concerned about the lack of sustainable suppliers or facilities.

Yet *albert* is effectively the only approach in use in the UK, with very strong engagement from many TV producers. To develop another methodology would be foolish.

10.3 Carbon reporting

To align with the BAFTA consortium, European peers, the PGA and to a degree the BFI, Screen Scotland might want to consider introducing a requirement for productions it funds to measure and report their carbon emissions using *albert*. However this is not as simple as it might seem:

- The first step of estimating the emissions in advance of production is, according to the *albert* website, likely to be quite simple, but a lot can change during production. Providing an accurate and so useful report at the end of a production, when cashflow issues are urgent, some crew have left and everyone else is tired and keen to move on to the next job, is much harder. This is best addressed by setting up good systems from the beginning which semi-automatically record the necessary data using purchase orders, expenses claims etc; and having somebody ensuring that changes are made throughout the process and the necessary elements recorded.
- This moves the process closer to the more onerous *albert+* approach, and probably requires more specific training. We believe that one of the reasons for Creative Carbon Scotland's continued support from the subsidised arts sector and the relative success of our carbon reporting and management process is that we originally provided a strong training programme and continue to support the sector as it increases its commitment and knowledge. We assume that *albert* has various sector-specific tools and resources available to help with this, but as we know from the reports of the *albert* training, some elements of these do not seem to be quite appropriate for Scotland. The training we would think necessary for this sort of process is more specific than the general *albert* training, and may be the courses that are aimed at producers.
- As noted above there seems to be a perception amongst producers that *albert* is a 'tick-box exercise'. This suggests a lack of connection being made between the need for carbon reduction and the process, possibly because it isn't clear how *albert* actually leads to the necessary change in practices, low carbon services and facilities etc. Some thought therefore needs to be given to how to close this gap.
- Related to this is the need for feedback to the industry. Nobody likes providing information to a funder which then disappears into a black hole. Screen Scotland would need to be able to analyse, interpret and feed back to the industry the data collected, which could then be used to focus efforts to change the practices and decarbonise the supply chain. Combining this with the more general knowledge and support in Scotland for the Scottish Government's carbon reduction targets might help address the concern about *albert* being a tick-box exercise.

Scotland has an advantage over England in all this, as it is a smaller country with a smaller industry: it is possible to talk to a lot of people quite quickly and personally. A parallel situation applies in the subsidised arts, where in England Julie's Bicycle has many hundreds of NPOs to deal with and uses a lot of impersonal webinars to deliver its carbon management work, whereas at Creative Carbon Scotland we have been able to form personal relationships with most of the organisations we work with.

10.4 Leadership

The problems with *albert* might also be addressed through stronger leadership. Scotland is fortunate in that the whole of the Scottish Parliament – not just the administration – is fully committed to the zero-carbon target and is providing strong leadership to achieve it. The Scottish public and businesses are perhaps more engaged with climate change and carbon reduction than in England. Screen Scotland's leadership, foregrounding and supporting the development of a truly sustainable screen industry, could help ensure that Producers and other industry leaders commit more fully to the aims of *albert*, changing the perception of it as a tick-box exercise to a crucial facet of the industry.

To provide this leadership, Screen Scotland itself would need to develop and implement its own environmental sustainability policies, as well as apply them across its work and funding programmes.

Like Trentino in Italy, one of Scotland's attractions to producers and studios is its unique and stunning natural and built environment. Screen Scotland could add to this by making environmental *sustainability* a key selling point, enabling producers and studios to achieve ambitious environmental aims easily because the local workforce, suppliers and industry are trained, equipped and ready to help.

This in turn would encourage Producers and local crew to themselves provide leadership to their production teams, ensuring that the benefits that *albert* can deliver are achieved.

Despite the recent stepping up of the commitment of some of the CineRegio members, there is still no strong leader of any real size in the field providing international leadership. This offers the opportunity to capitalise on these advantages and develop a world-wide reputation as the greenest place to make a film with which Scotland can attract external productions.

10.5 Environmental Co-ordinators

The role of the Environmental Co-ordinator employed by the American studios may be helpful but they need to be backed up by ambitious environmental aims. Also, whilst an Environmental Co-ordinator might have a degree of industry knowledge, they rely on departmental expertise and, for incoming productions they may lack local knowledge about relevant suppliers, conditions and people. Finally, Environmental Co-ordinators are effectively self-regulating their employers, leading to a potential conflict of interest.

A method that seems to deliver genuine carbon reductions is that used by the Flanders Audiovisual Fund (VAF) which employs a permanent sustainability consultant who works with each production to develop a tailored environmental plan, and then is available to support and monitor progress and to review delivery at the end of the production prior to

release of any final tranche of funding. This provides external verification which can be linked to funding requirements, consolidates and applies local knowledge gained over a series of productions and presumably can identify and address areas where more research or a more developed supply chain is required.

10.6 A whole system approach

It is clear from our analysis of the industry and many of our interviews that the screen production industry is an open system with many players, all of which need to be working together to achieve a zero-carbon industry by 2045. Many of these players will be affected by other changes, such as the increased availability of electric vehicles and charging. Screen Scotland and the screen industry therefore need to play their part, seeking to influence the system where they can to assist those changes, rather than focusing solely on their own corner, which is not able to become sustainable without those other players.

The creation of Screen Scotland and the partnership approach with the broadcasters, training providers and enterprise companies, the increased funding available to support screen production and the development of the new studio provide an opportunity to influence larger parts of the system described above, rather than focus on individual productions, which is the approach of most of the schemes we have learned about. The Scottish Government's clear long-term target for net-zero greenhouse gas emissions, and the more stretching net-zero by 2030 targets adopted by the two cities where most of the production and facilities companies are based, provide a rationale for putting in place a strategic plan to change the system overall. There is already some knowledge in the system and some enthusiasm for developing a greener industry. And the wider environment will be changing as Scotland seeks to achieve its world-leading emissions reductions.

To do this Screen Scotland will need to seek change in and around the whole system, rather than only the areas in which it has direct influence.

10.7 International collaboration

CineRegio's Green Group is stepping up its ambition and appears to be doing good work, producing interesting reports full of useful information about developments across Europe. Most important, the members have agreed to jointly adopt the T-Green standard developed by the Trentino Film Fund. At least some productions funded by Screen Scotland are likely to be co-funded by other European film development agencies and these productions are increasingly likely to be required to report their sustainability efforts to other funders. It makes sense therefore for Screen Scotland to align its criteria with T-Green, if not to formally adopt it.

10.8 A sustainability hub

Bringing together the elements above, we propose the development of what we call a 'sustainability hub' would help Scotland become a genuine leader in the greening of the screen industry. The hub would take an approach similar to the VAF's Environmental Consultant whereby the hub works, as an independent agent, with all funded and ideally non-funded productions in Scotland. This would:

- demonstrate clear commitment and leadership
- provide a centre for knowledge development and dissemination

- provide a virtual if not physical centre for the development and delivery of a Scottish *albert* training programme, tailored to local conditions, using local knowledge and referencing the local supply chain
- provide a nexus through which the screen industry could engage with, influence and learn from the wider system
- provide a connection with the wider international green screen industry networks
- provide a base for a materials re-use and re-purposing company, along the lines of that proposed by Re-Set Scotland.

We would suggest the hub should be based at or near the new Leith studio to be able to support productions there and to benefit from the likelihood that the area will become a centre for the industry as the studio attracts more productions.

11 Recommendations

Our core recommendation is that Screen Scotland has the opportunity to become an international leader in sustainable screen production, mirroring Scotland's wider leadership in climate change, if it takes the best elements of the examples of good practice that we have discovered and combines them to establish itself as the **leading green screen development agency in Europe**. Its approach should align with but improve on equivalent schemes in the UK, Europe and North America, to avoid duplication and enable co-funders, co-producers and incoming producers to understand and accept standards set in Scotland.

At present the industry cannot provide sufficient trained staff or access low-carbon facilities or services to make it feasible to require high standards of environmental sustainability as a condition of funding, but the intention to do so by a particular date, supported by a comprehensive training programme and the ongoing development of the low carbon facilities and services, should be announced.

In the meantime, funding schemes should ask questions about sustainable practices and prioritise those productions that are demonstrating good practice

If adopted the approach we are recommending would fit with each of Screen Scotland's main funding schemes:

- **Film Development & Production Fund** Productions funded through this scheme would be supported to meet high environmental standards
- **Broadcast Content Fund** Alignment with the major broadcasters and producers, would enable them to meet their own environmental standards easily in Scotland
- **Production Growth Fund** Incoming producers would have an incentive to work in Scotland as the 'greenest place to make a film in the world' as they would be able to deliver the environmental standards demanded by major studios, broadcasters and distributors easily, with the trained staff, practices, facilities etc in place

Our detailed recommendations are therefore as follows:

Screen Scotland

- a. Screen Scotland should offer a strong lead to companies and individuals, making clear that its aim is for Scotland to develop a zero-carbon screen industry, and that it will support, encourage, enable and in due course require actions to achieve that aim.
- b. Accordingly, Screen Scotland should urgently develop its own environmental policy, strategy and action plan and train its own staff to ensure that this is applied internally and across its funding schemes and the projects it runs and supports.
- c. The Screen Commission or another group should develop a Green Film Charter with which local Film Offices should be encouraged to align their own Codes of Practice and Film Charters.
- d. Screen Scotland should use its influence and the leverage that comes from its funding of the new Leith Studio to ensure that the studio itself is operating to high environmental standards and that it encourages and enables incoming productions to work to similar standards.

- e. Screen Scotland should announce soon that it intends from a certain date to require high standards of environmental sustainability as a condition of funding, and that it will support a comprehensive training programme and the development of the low-carbon facilities and services in order to enable local and incoming productions to achieve these standards.
- f. Screen Scotland should consider introducing mandatory carbon reporting using the *albert* system for funded projects, whilst bearing in mind the challenges this presents and the training needs it would require.

Training

- m. The *albert* system for measuring, reporting and reducing production greenhouse gas emissions should be adopted as the standard set of tools for measurement and reporting by Screen Scotland, as it is well established and used by the major UK broadcasters and TV production companies.
- n. However the *albert* training is not working in Scotland and we recommend that Screen Scotland should work with BAFTA to support the development of an improved version that aligns with the existing approach but is specific to Scotland, using local examples, providing detailed and practical advice for use the next day on a production, including local low carbon service providers etc.
- o. Different versions of this '*albert*-Scotland' training should be targeted at different roles in production process, including Producers, Production Managers and Accountants, Location Managers, 1st Assistant Directors and other roles involved in the planning and budgeting of productions, as well as Heads of Department and crew members. Writers, Directors and Art Directors could also benefit from more tailored training packages of their own.
- p. Such training should aim as a priority to ensure that Producers and others recognise that *albert* is not a 'tick-box exercise' but will play an important role in making Scotland's screen industry a world leader in sustainability.
- q. Sufficient capacity should be developed in delivering '*albert*-Scotland' training so that by an agreed date Screen Scotland investment can be contingent on at least 51% of the creative and production teams and crew having gained the relevant certification.

Facilities and Services

- m. Screen Scotland should work with the facilities and service providers that support screen production, both those directly connected to the industry such as post-production houses and those whose main customers may lie outside it, such as transport and vehicle providers

Sustainability Hub

- q. In order to encourage and facilitate the above changes to the system, Screen Scotland should invest in a Screen Sustainability Hub, which is an industry-leading centre of expertise with a Screen Production Sustainability Manager who is available to support individual productions, to provide and co-ordinate '*albert*-Scotland' training, and to build the sector's expertise, knowledge and understanding of environmental sustainability.

- r. Building on the success of the Flanders Audiovisual Fund, we recommend that Screen Scotland-funded productions should work with the Screen Production Sustainability Manager to develop an environmental plan tailored to that particular production, with targets and monitoring processes.
- s. The Sustainability Hub should ideally be located at or near the new Leith Studio, and should include provision for materials re-use, re-purposing and recycling, such as the model offered by Re-Set Scotland.
- t. The Screen Sustainability Hub should work with other agents in the industry such as facilities companies and locations to ensure that sufficient low-carbon services and facilities are available to enable productions to reach the high environmental standards required by Screen Scotland funding.

12 Appendices

12.1 Appendix 1: Organisations and individuals consulted

Organisation contacted	Response?	Collecting environmental data or engaged somehow with environmental work?	Further interview/email questionnaire etc
Europe			
Trentino Film Commission (Italy)	Yes	Yes	Yes
North Norway	Yes	No	
Film Puljen (Denmark)	Yes	No	
Flemish Audiovisual Fund (Belgium)	Yes	Yes	Yes
Wallimage (Belgium)	Yes	Yes	Yes
IDM Sud Tyrol (Italy)	Yes	Yes	Yes
Lodz Film Commission (Poland)	Yes	Just beginning	
Galway Film Centre (Ireland)	Yes	Some	
Screen Brussels Fund (Belgium)	Yes	Yes	
Ffilm Cymru Wales	Yes	Just beginning	
Cineforum (Switzerland)	Yes	No	
Krakow Film Commission (Poland)	Yes	No	
Basque Country (Spain)	Yes	No	
Mitteldeutsche Medienforderung (Germany)	Yes	No – advised contact FFHSH & MFG	
Daglig Leder (Norway)	Yes	No – planning to adopt Trentino scheme	
Film I Skane AB (Sweden)	Yes	Yes	
FilmFlyn (Denmark)	Yes	No	
Roma Lazio Film Commission (Italy)	Yes	Not obvious – advised contact Trentino etc	
UK organisations			
BECTU Vision	Yes	Yes	Meeting
Napier University Screen Academy	Yes	Yes	Phone interview
Royal Conservatoire of Scotland	Yes	No	Meeting
Scottish Funding Council	Yes	n/a	Phone interview
National Film & TV School Scotland	Yes	Yes	Meeting
Re-Set Scotland	Yes	Yes	Meeting

Skills Development Scotland	Yes	n/a	Phone interview
Screen Commission	Yes	No	Meeting
BAFTA <i>albert</i>	Yes	Yes	Meeting
BFI	Yes	Yes	Phone meetings
The Costume Directory	Yes	Yes	Meeting
Dresd	No	Yes	Information taken from website
Quartermaster (proposed studio)	Yes	Yes	Phone meeting
Greenshoot	No	Yes	Information online
Individuals/suppliers (not named for purposes of anonymity)			
Producers	21 contacted, six replied		Six interviews
Location Managers	19 contacted, five replied		Five interviews
Environmental Co-ordinators	Three contacted, two replied		Two interviews
Suppliers: transport, facilities companies, lighting supplies	Four contacted, four replied		Four interviewed
Studios (Scotland)	Four contacted, three replied		Three interviewed
Catering suppliers	Eleven contacted – no replies		

12.2 Appendix 2: Interview structures

Producers, Location Managers, Craft Services people, suppliers etc

Questionnaire questions (adjusted according to the role of the interviewee)

1a. How many film or television productions do they make in Scotland annually?

Answer: Numerical figure of how many productions they work with per year.

1b. Do they know how many filming hours that equates to per year within their district?

Answer: Yes, with numerical figure, or no.

1c. How much of the work that they do is supported by Screen Scotland?

Answer: Numerical figure or percentage of their total output

2a. Do they already take their productions carbon footprint into account when making their productions?

Answer: Yes / No.

2b. If yes to question 1a, in what way(s) does their work take into consideration its carbon footprint?

Answer: This is an open ended question

2bii. If yes to question 2a, how do they measure and record this process?

Answer: Open ended question

2biii. If yes to question 2a, why do they do so:

- * Required by the commissioning organisation?
- * Helps them work effectively?
- * Personal or company interest & commitment?
- * Staff or other pressure?
- * Other.....

3. What barriers are there to producers reducing their carbon emissions on each production of theirs, with the support and resources available to them in Scotland currently?

Answer: Open ended

4. What resources / support do the film offices feel that they need in order to better support themselves to reduce their greenhouse gas emissions?

Answer: Open ended

5. In the ideal scenario of Scotland being able to reach their greenhouse gas reduction targets of 75% reduction by 2030, 90% by 2040, and 100% by 2045, what further measures do they feel could be taken by the following key actors in order to support film offices to initiative change on film productions across Scotland.

From each of:

- The Scottish Government?

Answer: Open ended

- Screen Scotland?

Answer: Open ended

- Film and television producers across Scotland?

Answer: Open ended

6. Do you have any examples of good practice that your office has employed in order to increase support for producers for reducing their greenhouse gas emissions on each production of theirs?

Answer: Open ended.

Film offices

Questionnaire questions

This questionnaire is addressing an overarching descriptive and quantitative question of: How much support do film and television producers in Scotland receive from Scottish film offices each year?

The reason for phrasing this question in this way is that it is important to understand the current level of support, and relationships already established, between Scottish film offices and film and television producers in Scotland.

The time frame of a year is also a useful one to work with as, particularly for freelance producers, as there may be some time in a year where a producer does not work at all, but in a given year it would be expected that most producers would have at least one film or television production that they are responsible for making.

Questions

- 1a. Do the film offices already have relationships with producers that offers the producer guidance or support from the film office in how to reduce their greenhouse gas emissions?

Answer: Yes / No.

- 1b. If yes to question 1a, in what way(s) does the office provide this support?

Answer: This is an open ended question as not to limit the film offices on their sharing of how they perceive themselves to be supporting productions already.

- 1bi. If yes to question 1a, how frequently would they say that they are speaking with producers with regards to productions reducing their greenhouse gas emissions:

Answer:

- Once a week?
- More regularly than once a week?
- Once a month?
- Less frequently than once a month?
- Other:

- 1bii. If yes to question 1a, is there any feedback between producers and film offices with regards to this support?

Answer: Yes/ no

- 1biii. If yes to bii, how do film offices measure this feedback, or collect this data?

Answer: Open ended

1c. If no to question 1a, are the film offices aware of what work, if any, producers are doing to reduce greenhouse gas emissions on each of their productions independently of the film offices?

Answer: Yes / no.

1ci. If yes to question 1c, how do the film offices know of any work that producer are doing independently of film offices?

Answer: Open ended

2a. What measures do the film offices take to establish what productions are currently being made in Scotland - whether either as a Scotland initiated project, or a location filming in Scotland from elsewhere – and at what stage?

Answer: Open ended.

2b. To what degree do film offices feel that they have a record or awareness of what productions are being made within their local area?

Answer: an estimation of the proportion of films or television shows made in their local area that they believe that they are aware of.

2bi. To what degree do film offices feel that they have a record or awareness of what productions are being made in the whole of Scotland?

Answer: an estimation of the proportion of films or television shows made in the whole of Scotland that they believe that they are aware of.

3. Whether the offices have already established relationships with film producers in regards to their greenhouse gas emissions or not:
What barriers do film offices experience to establishing better working relationships with producers with regards to supporting their efforts to reduce greenhouse gas emissions on each production?

Answer: Open ended question.

4. Whether the offices have already established relationships with film producers in regards to their greenhouse gas emissions or not:
What do they think that the barriers are to producers reducing their carbon emissions on each production of theirs, with the support and resources available to them in Scotland currently?

Answer: Open ended question

5. What resources / support do the film offices feel that they need in order to better support producers and productions to reduce their greenhouse gas emissions?

Answer: Open ended question

6. In the ideal scenario of Scotland being able to reach their greenhouse gas reduction targets of 75% reduction by 2030, 90% by 2040, and 100% by 2045, what further

measures do film offices feel could be taken by the following key actors in order to support film offices to initiative change on film productions across Scotland.

From each of:

- The Scottish Government?

Answer: Open ended

- Screen Scotland?

Answer: Open ended

- Film and television producers across Scotland?

Answer: Open ended

7. Do you have any examples of good practice that your office has employed in order to increase support for producers for reducing their greenhouse gas emissions on each production of theirs?

Answer: Open ended.