Green transition in the audiovisual sector

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Eric Munch

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Foreword

Every human activity has an impact on the environment, whether it be good or bad. It is no different in the audiovisual sector. Many things have been said over the years about the film industry's environmental impact. We have all seen movies shot in remote locations, sometimes involving dozens of crew members and tons of gear being flown in. The toll such productions take on the environment is not always the primary concern of the production company, or that of the viewers. Further down the traditional chain of production, the making of physical media to disseminate films – with the Blu-ray replacing the DVD, which replaced the VHS in its time – also significantly impacts the environment. In that context, the popularity of dematerialised platforms and audiovisual content may, at first sight, appear to be the perfect alternative for the environment.

Stakeholders and society have had decades to gradually consider the traditional media's impact on the environment. With new parameters coming into play, assessing the audiovisual sector's environmental impact becomes even trickier. Moving on from a physical-copy-based world to that of online content and streaming, it may seem like the progress of technology would solve most of our issues. For many, gone are the days of extensive VHS or DVD collections, collecting dust prior to being thrown away with no perspective of recycling.

Unfortunately, what happens in the cloud does not stay in the cloud. User-generated content may have a more insidious impact, which is harder for the public to grasp. The user does not directly feel the impact of their audiovisual consumption on the environment, with data centres handling the heavy lifting from afar. And the energy needed to keep them running can be staggering.

This report will look into those questions, from an initial overview of the situation to a dive into legislation impacting the audiovisual sector, by imposing or promoting sustainable approaches. Sustainability initiatives in the sector and sustainability criteria by film funding agencies will also be explored in order to give a comprehensive overview of the state of play.

Enjoy the read!

Strasbourg, February 2025

Maja Cappello

IRIS Coordinator
Head of the Department for Legal Information
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Executive summary

The impact of the audiovisual sector on the environment is complicated to assess, in particular when compared to the impact of other sectors. Reflections surrounding the impact of film and television production multiplied at the end of the 20th century, and the early 21st century birthed numerous reports and studies on the topic, by the press, by academics and by the stakeholders themselves, motivated either by a desire for the industry to behave more sustainably or to better align with the general public's growing awareness of environmental issues.

Understanding the impact of a changing sector

Over the years, various reports and studies have shed light on the environmental impact of the film and television industries, highlighting with growing precision and finer granularity the impact of different types of production and what exactly caused them to have such an impact.

Large-scale productions can have substantial environmental costs due to travel, transportation of equipment, energy consumption, and set construction. But king among factors of carbon emissions, and common to productions of all sizes, is the fuel consumed in the production and operation of equipment and vehicles. In addition to production, physical distribution media have a notable impact on the environment.

The rise of streaming and digital distribution may give the idea that the progress of technology is naturally solving this issue. While seemingly more environmentally friendly, both rely on energy-intensive data centres, which consume vast quantities of water and cause carbon emissions. Studying the environmental impact of physical distribution media like DVDs reveals that their environmental impact decreases drastically each time they are viewed, as their impact mostly comes from their production rather than from their use. Watching a DVD several times considerably lowers its impact on the environment, compared to streaming the same film as many times.

The noticeable arrival of user-generated content in the mix of audiovisual media consumed online also plays a part in the streaming sector's growing impact on the environment. It is also fuelled by the availability of high-resolution devices and the popularisation of livestreaming, both of which are demanding in terms of bandwidth and data centre usage.

From studies to actions: the various measures taken by actors of the audiovisual sector

Measures to improve the sustainability of the audiovisual sector can be taken at several levels. Actors in the film and television industry themselves have gradually been adapting their practices to reduce their environmental impact. Organisations like the Environmental Media Association (EMA) and BAFTA albert (an environmental association striving to make film and television production more sustainable) have long been involved in promoting sustainability in the industry.

Most of the actions taken by the various stakeholders to foster change in the audiovisual sector in terms of its environmental impact, are rooted in the strategies of some specific players and their ambition to influence others. Film funds, for instance, have since the Paris Agreement in 2015 and the European Green Deal, started incorporating sustainability criteria into their eligibility requirements. Networks for exchanging best practices and promoting sustainable approaches to production are also being established.

A key for efficient actions: reliable, interoperable, measuring tools

The ability to precisely measure the impact of the audiovisual sector is key to making it more sustainable. This is highlighted by the varying methodologies used by different carbon calculators, which reduce their interoperability, especially across borders. The European Commission is funding the development of a common carbon calculator with a common application programming interface, allowing for data exchange with other calculators.

Some film funding institutions support additional costs associated with more sustainable alternatives to traditional processes. Programmes like the Green Shooting Card in Germany can simplify the procedure for obtaining shooting permits.

From a legal perspective

At the time of writing, with the exception of a few selected laws with regard to national film funds, very few pieces of legislation directly address the environmental impact of all or parts of the audiovisual sector. The 2021 French *Loi n° 2021-1485 du 15 novembre 2021 visant à réduire l'empreinte environnementale du numérique en France*[1] (Law 2021-1485 of 15 November 2021 aiming to reduce the carbon footprint of digital technology in France) is an example of such a law, but it addresses the environmental impact of the wider digital sector. While it leaves out some aspects of the audiovisual sector, it encompasses others, with direct consequences on the environment. For instance, as foreseen in Article 26, the French national media regulatory authority, Arcom, has published a recommendation aimed at reducing the environmental footprint of digital technology. The recommendation includes suggestions for broadcasters, video on demand and video-sharing platform providers to provide energy-efficient parameters to their users and develop a standard methodology to evaluate the environmental impact of on-demand video game usage.

[1] *LOI n° 2021-1485 du 15 novembre 2021 visant à réduire l'empreinte environnementale du numérique en France* (Law 2021-1485 of 15 November 2021 aiming to reduce the carbon footprint of digital technology in France).

There is nothing in the legal framework at the EU level that deals specifically with sustainability in the audiovisual sector, but Regulation 2021/1119,[2] also known as the European Climate Law, sets targets to reduce net greenhouse gas emissions by 2030, as well as a legally binding target of net zero greenhouse gas emissions by 2050.

However, recent pieces of EU legislation, like Directive 2022/2464,[3] the Corporate Sustainability Reporting Directive (CSRD), and Directive 2023/1791,[4] the Energy Efficiency Directive (EED), may have an impact on the sector in the future, though they are not specifically targeted at the audiovisual sector.

The CSRD will have an indirect impact on the audiovisual sector, via the obligations it imposes on all undertakings, including those from the audiovisual sector, to report on their environmental impact. The CSRD foresees that branches of non-EU undertakings located in the EU will have to comply as well, opening the possibility of seeing the directive have an impact on the audiovisual sector even outside of the EU.

Like the CSRD, the EED does not target the audiovisual sector, but it requires member states to impose obligations on large data centres, including an obligation for some data centres to reuse the waste heat they generate.

At the time of writing, only a few months have passed since the transposition deadline of the CSRD and the transposition deadline of the EED has not yet been reached. It will take years to measure the impact of both directives on the audiovisual sector.

Conclusion

In a nutshell, the green transition in the audiovisual sector is an ongoing process that requires continuous collaboration between policymakers, funding bodies, and industry stakeholders. Challenges remain, but there is growing awareness and commitments to reduce the sector's environmental impact. Research (to precisely measure environmental impacts) and innovation (to develop alternative solutions) will be necessary to further support this green transition, and further specific policy development may prove a useful motor.

[2] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law')

[3] Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting.

[4] Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast).

1. Overview

In 2019, the European Audiovisual Observatory (EAO) published a mapping report on film and audiovisual public funding criteria in the European Union (EU).[5] The report included a case study on a growing trend among European film funding institutions to adopt green production policies and to promote more sustainable initiatives, with the aim of improving the media industry's overall practices.

These off-screen initiatives complement the on-screen representation of sustainable behaviours. They include the creation and development of networks for exchanges of best practices and cooperation, as well as promoting a more environmentally-friendly approach to audiovisual and cinematographic production, which often translates into calls for a more reasonable use of resources and the preservation of natural spaces.

It is within the discretionary powers of the funding agencies to push the wider industry towards green initiatives by including sustainability clauses in their funding criteria. The 2019 mapping report by the EAO noted that it often came in the form of allocating funding dedicated to covering sustainable and environmentally-friendly production costs, or via the attribution of environmental certification which can in return facilitate the obtaining of shooting permits. The measures are often described in specific guidelines or toolkits, and could concern the different phases of pre-production, production and post-production. Some film funding institutions were found to account for the higher financial cost of the more sustainable alternatives to traditional processes and techniques by supporting the additional costs. In Germany, for instance, the Hamburg Schleswig-Holstein Film Fund's recommendations on environmentally-friendly shooting may lead to a production receiving a Green Shooting Card, which can simplify the procedure for the delivery of a shooting permit in the region. At the time, managing directors of several film funds, both at federal and state levels, had expressed, in a joint statement, their commitment to supporting the additional costs of green production.[6]

Since the mapping report, on the occasion of the United Kingdom's 2021 presidency of the EAO, an online conference on green initiatives in the film industry was jointly organized by the EAO and the UK's Department for Digital, Culture, Media and Sport (DCMS). At the time, very few countries had specific laws regarding sustainability in the audiovisual sector. The present report explores how the situation has evolved since then and broadens the scope to include not only film and public funding but also the wider audiovisual sector.

As a starting point, the report examines the environmental impact of the audiovisual sector, looking at the production of films and series, but also other types of audiovisual content and their means of distribution, as well as the general impact on the environment of broadcasters and streaming services, which encompass both video-on-demand (VOD) services and video-sharing platforms (VSP).

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[5] *Mapping of film and audiovisual public funding criteria in the EU*, European Audiovisual Observatory, Strasbourg, 2019.

[6] Stellungnahme aller deutschen Filmförderungen zum Thema „Grünes Drehen", Munich 24 November 2017.

It will then focus on the regulatory framework applicable to the sector and how it aims to push the industry towards achieving better sustainability by looking into the different systems that have been adopted at the European and national levels, as well as outside of Europe, and explore how they approach the question: via mandatory rules, eligibility criteria for public funding, incentives or competition rules, for instance.

Finally, the report will also examine how sustainability is incentivized by the various actors, focusing on potential criteria for a greener approach set by film funds and other financing mechanisms.

2. The impact of the audiovisual sector on the environment

2.1. Awareness of the motion picture sector's impact of the environment: a brief history

2.1.1. Understanding the direct and indirect impacts of films on the environment

As with all human activities, the audiovisual sector impacts the environment. The impact of the motion picture industry is undeniable, although hard to quantify precisely. This is in large part due to how diverse the environmental impacts of a piece of audiovisual content can be.

There is the creation of the content itself, the environmental impact of which can range from negligible (such as a short video filmed on a smartphone) to very high (a multi-million-dollar film requiring the participation of hundreds throughout its production). Blockbusters with large production teams, filming on location or building huge sets immediately come to mind. Shooting a film, or a television show, requires people and equipment to travel or be shipped from point A to point B, which will inevitably produce carbon emissions. In some cases, the crew's accommodation, catering, the use of electricity to power the set, plus the additional diesel generators all contribute to an expensive environmental bill. And that is without accounting for the impact of the promotion and marketing surrounding the release, or the production of physical distribution media (VHS, DVD, Blu-ray).

In addition to the direct consequences of producing any form of audiovisual content, there are also indirect consequences that may not have been foreseen at the time of production. Danny Boyle's 2000 adventure drama film *The Beach* caused an island in Thailand's Phang Nga Bay to experience an unprecedented influx of tourists. While one could see it as an opportunity for local businesses, its impact on the environment is far from negligible. As a movie tailored to cater to Western audiences, moviegoers who found themselves attracted to the pristine waters and white sand of the island travelled thousands of kilometres, in most cases by plane, to get there. Reporting on the film's impact on the area, Far Out Magazine said of the movie that it was "still attempting to correct its devastating effect on Thailand."[7]

[7] Russell C., "How Danny Boyle movie 'The Beach' ruined Thailand's Maya Bay", *Far Out Magazine*, 19 February 2023.

Despite efforts by 20th Century Fox, the damage could only be mitigated. The changes, although purely cosmetic in appearance, did cause further damage to the beach. A similar initiative failed to achieve comparable results. Several local organisations initiated a lawsuit to stop the filming. After about ten years, the plaintiffs and 20th Century Fox reached an agreement,[8] with the latter agreeing to pay 10 million baht for the restoration of Maya Bay.

A significant part of the damage caused by the movie was a consequence of poorly implemented solutions to problems that the production had rightly identified, by reflecting on the impact of their activities on the environment.

Filming on location instead of shooting on sets, almost 14,000 kilometres away from Hollywood, required flying in actors, crew and equipment, which generated a substantial quantity of carbon dioxide (CO_2). This is not specific to *The Beach* in particular, as it applies to a certain degree to all films with on-location shooting requiring long-distance travel by actors, crew and gear.

2.1.2. Research into the motion picture industry's impact on the environment

2.1.2.1. Early research and growing awareness in the industry

A report[9] by the University of California Los Angeles (UCLA) Institute of the Environment from 2006, under contract with the California Integrated Waste Management Board (CIWMB), is often considered to be the first wide-ranging study on the impact of the motion picture industry's effect on air pollution. Over two years, the authors conducted interviews and case studies with the objective of developing a green production guide based on best practices within the industry (regrouping film and television production). At the time, the report noted that "the structure of the industry mitigates against environmental improvement, though: its highly decentralised nature, with its focus on short-term ever-changing production teams rather than long-term physical supply chains, and the contrast between its high popular visibility and financial instability resulting from its complex organisational structure, stand in the way of its adopting many of the environmental programs that are common in more traditional industries."

It would be a mistake to consider that the collective awareness of the motion picture industry's impact on the environment dates back only a few years. As highlighted in the UCLA report, outlets like The *Hollywood Reporter* and *Variety*, wide-reaching though specialised, had steadily published several articles per year on environmental issues related to the industry between the 1990s and early-2000s.

In 2004, the Environmental Media Association's (EMA) awards transitioned from only focusing on films and shows conveying environmental messages to including a

[8] Editorial, "'Beach' case settled at last", *Bangkok Post*, 16 September 2022,
[9] Corbett C.J., Turco R.P., "Sustainability in the Motion Picture Industry", UCLA, 2006.

category for environmental process improvement, based on EMA's Green Seal for Production checklist.[10]

Years later, in 2011, the British Academy of Film and Television Arts (BAFTA) launched BAFTA albert,[11] the leading screen industry organisation for environmental sustainability. The purpose of the organisation is to "support the film and television industry in reducing the environmental impacts of production and to create content that supports a vision for a sustainable future."

In addition to being owned by BAFTA, albert's TV Industry Steering Group was comprised (at the time of writing) of BBC Public Service, BBC Studios/UKTV, ITV, C4, Netflix, Amazon Studios, Sky, Warner Bros Discovery, Pact and Viacom, which testifies to a certain consensus at the industry level regarding the importance of environmental sustainability.[12]

Over the years, a growing number of studies have been conducted to assess more precisely the impact of filmmaking on the environment.

2.1.2.2. Recent studies

In 2019, the British Film Institute (BFI)[13] commissioned research into the UK film production activity and environmental sustainability, which led to the publication of a report on current practices and research opportunities.[14] "A Screen New Deal: a route map to sustainable film production"[15] jointly developed by BAFTA albert, Arup[16] and the BFI, was released a year later, building on the findings of the previous report and laying out a comprehensive alternative vision for the future of film production.

In 2022, in the context of Sony Pictures Entertainment's (SPE) "Sony Pictures A Greener World" initiative, SPE commissioned the Inner City Fund ICF,[17] a global advisory and technology services provider to conduct a study[18] comparing the greenhouse gas (GHG) emissions from scenes of on-location and virtual productions, based on data describing the resources needed for on-location shoots of two TV shows. Despite varying parameters between the two productions, the study concluded that GHG emissions from virtual production would be drastically reduced (by up to 80% in one scenario) during the preparation, shoot and wrap portions of a production.

As explained in the methodology section of its analysis, the ICF study left out several emissions factors in its comparison: emissions related to editing the footage,

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[10] EMA website: EMA Green Seal for Production.

[11] BAFTA albert was initially started as a BBC project in 1996 which soon recognised the importance of having it industry-owned, and transferred to BAFTA: BAFTA albert.

[12] BAFTA albert TV Industry Steering Group.

[13] The information contained in the report with regard to the work of the BFI was verified by Keir Powell-Lewis, Head of Environmental Sustainability at the BFI.

[14] Green matters – Environmental sustainability and Film Production: an Overview of Current Practice, March 2020.

[15] A Screen New Deal: a route map to sustainable film production.

[16] Arup website

[17] ICF website.

[18] Comparison of GHG Emissions from Scenes of On-Location and Virtual Productions, ICF study commissioned by Sony Pictures Entertainment.

digitizing the on-location capture footage, re-shoots and post-production work were excluded. Some data was also incomplete or missing and had to be determined based on assumptions by the authors (fuel consumption of the crew's personal vehicle, electricity consumption on set and the energy consumption of virtual production stages, for instance). The factors purposefully left out of the equation would have had a limited impact on comparing the GHG emissions from on-location shooting and from virtual sets (being of similar magnitude in both scenarios), ultimately not altering the conclusions of an analysis focusing on finding the better of two solutions.

The theoretical nature of the experiment, though meticulous, highlights the importance of properly assessing the environmental impact of film production to determine if an alternative is indeed a satisfactory alternative. Based on this premise, more carbon calculators have started to emerge to provide accurate data on a film's impact on the environment.

2.1.2.3. Assessing the causes and impacts of film and television production on the environment

Prior to the ICF study, in 2021, a consortium of media and entertainment companies known as the Sustainable Production Alliance[19] (SPA) published a large-scale report on the carbon emissions of film and television production.[20] The report looked at 161 feature films, ranging from tentpole[21] movies to smaller films and 266 television series, including scripted and unscripted shows, filmed with a single or multiple cameras. The common denominator between those productions is their use of the Production Environmental Accounting Report (PEAR), a carbon calculator created by SPA in partnership with the Producers Guild of America's Foundation's PGA Green Initiative.

The SPA report found that tentpole productions had an average carbon footprint of 3,370 metric tons. Fuel consumption (in production vehicles and generators) was the largest contributing factor, reaching up to almost half of the carbon footprint. The proportion was even greater in large and small movies, with only medium movies having a lower proportion of their carbon footprint coming from fuel consumption.

Air travel and utilities were found to be the next largest contributors to tentpole movies' carbon footprint, with housing accounting for only a small portion of the total.

The report noted that regarding television series, the differences in the carbon footprint were not only due to the length of the show, but also due to a tendency for one-hour scripted dramas to be shot on location more often than half-hour scripted single-camera shows. Half-hour multi-camera shows are generally shot much faster than half-hour single-camera shows, often mostly on stage, with little to no location shooting.

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[19] The SPA is now known as the Sustainable Entertainment Alliance (SEA). Its members include Amazon Studios, Amblin Partners, Disney, Fox Corporation, NBCUniversal, Netflix, Participant, Sony Pictures Entertainment, ViacomCBS and WarnerMedia.

[20] "Close Up – Carbon Emissions of Film and Television Production", Sustainable Production Alliance, March 2021

[21] Tentpole: a big-budget movie whose earnings are expected to compensate the studio for its less profitable movies (Merriam-Webster).

With fuel consumption being the overall primary contributor to a production's carbon footprint, the report underscores the urgent need for a transition from fossil fuel to renewable energy solutions.

The findings of the report, with their potential to raise global awareness, are a significant revelation about the film and television industry's impact on the environment. Ultimately though, the report highlights the importance of gathering accurate data.

2.2. Case-study: a look at Sky Studios Elstree

The stakeholders of the audiovisual sector are also increasingly tackling the issue. A telling example is that of Sky Studios Elstree.[22] The new studio, which opened its first stages in early 2022, has sustainability at the heart of its design, with some of the world's most ambitious studio sustainability goals. The whole complex is powered or matched by a mix of onsite (roof top solar panels) and offsite renewable energy. It was designed to harvest rainwater, use LED house lighting and support an electric operational vehicle fleet including their shuttle bus which connects the studios to the public transport network.

The case of Sky Studios Elstree is a good illustration of the many facets of sustainability in film and TV production. Sustainability reflections encompass both innovations directly related to film production and initiatives relating to support activities, which are not sector-specific but result from the studio's activities.

The stages incorporate smart design principles to support filming activities that have a reduced impact on the environment. Each stage's interior walls are carefully designed, and lined with a specialist insulation material, that not only enhances acoustic performance but also provides thermal efficiency, which alongside the fully electric air handling units, help manage temperatures within the stage and therefore reduce the need for additional heating and cooling systems to be utilised by productions. The stages also combine a mixture of fast reacting roller doors and overhead heaters designed to help maintain a stable temperature in the colder months even when the stages' large elephant doors are kept open, which is often necessary during set construction periods. Conscious of the widespread use of diesel generators in production and their impact on the environment, each stage has a main power supply of at least 1 megawatt which is distributed through multiple power distribution units around the perimeter of the stage and in the gantries. This method of distribution minimises the need to add additional power sources and cabling.

The team at Sky Studios Elstree keeps track of the financial cost and environmental impact of energy usage throughout the productions time at the studios, providing production companies with an overview of their usage profile by building and therefore production department as well providing insight into how it could be reduced in the future.

[22] The information provided in this report on Sky Studios Elstree was collected during a visit of the premises and discussion with several members of the staff. It has been checked by the Sky Studios Elstree team. Additional information can be found on the Sky Studios Elstree website.

In addition to stages, Sky Studios Elstree has also worked with productions to store large sets with the view of reducing the environmental impact of transporting them across long distances. TV and in particular, Film production, can also generate large volumes of waste. Sky Studios Elstree deal with this by providing segregated recycling routes and have contracted with a local waste company who provide a secondary sorting process, boosting recycling rates to above 70%.

The overall design and approach to film production that govern the activities conducted at Sky Studios Elstree echo the conclusions of the route map to sustainable film production[23] co-developed by BAFTA albert, the British Film Institute and Arup, which noted the need for studios to play their part in making productions more sustainable.

However, Sky's approach to sustainability goes further than Sky Studios Elstree. It was the first broadcaster to sign up to the United Nations Framework Convention on Climate Change's (UNFCCC) Sports for Climate Action[24] framework. Signatories place climate action in the agenda of the sports industry.

This logic also transpires in Sky Studios' Sustainable Production Guidelines,[25] which apply to all Sky Original productions and states that Sky Studios prefer to work with producers and businesses aligned with their Sky Zero[26] Strategy. The guidelines also impose mandatory albert certification for productions across the UK and Italy.

2.3. The environmental impact of new technologies

2.3.1. The environmental impact of digital media

The audiovisual sector is, however, wider than film and television. The ICF and SPA reports, and carbon calculators are extremely valuable resources and tools focusing solely on those areas. Technological developments have led to a shift in media consumption over the last 20 years and the rise of video streaming.

At first glance, streaming removes several intermediaries between the production of audiovisual works and their delivery to viewers. The absence of physical media removes the need for large-scale production and shipping, which positively impacts CO_2 emissions. However, video streaming does come with a carbon footprint of its own, as highlighted in a June 2021 white paper by Carbon Trust.[27] It found that the average European carbon footprint for an hour of video streaming is 55 grams of CO_2, with important variations based on several factors.

[23] A Screen New Deal – a route map to sustainable film production.
[24] UNFCCC website: Sports for Climate Action.
[25] "Sky's Sustainable Production Guidelines", Sky Studios, 27 November 2023.
[26] Sky Zero website.
[27] Stephens A., Tremlett-Williams C., Fitzpatrick L., Acerini L., Anderson M., Crabbendam N., *Carbon Trust*, "Carbon impact of video streaming white paper", June 2021

According to the report, the biggest variable is the country-specific electricity grid emission factor, which measures the amount of carbon emissions per unit of electricity generated. For instance, Germany's grid emission factor is approximately 30 times that of Sweden,[28] resulting in a 30-fold difference in the overall carbon footprint. The next most significant factor in carbon emissions is related to the device used for watching. The report notes that watching content on a 50-inch TV roughly has 4.5 times the impact of watching the same content on a laptop and 90 times the impact of watching it on a smartphone.

The data centres in which all online content is stored also contribute to carbon emissions. Though they are gradually turning to more efficient energy sources, data traffic demands are projected to continue growing, particularly related to cloud data centre traffic. This increased traffic will translate into energy consumption and carbon emissions. The extent of the increase in energy consumption varies greatly depending on estimations. Separate studies commissioned by the European Commission's DG Energy[29] and DG Connect[30] in 2020 gave very different projections on data centre electricity consumption in the EU-27 by 2025. Both reports, however, foresee a rise in data centre energy consumption.

In 2022, the French *Agence de la Transition Ecologique* (ADEME) published a report, on the environmental impact of the digitalisation of cultural services ("*Evaluation de l'impact environnemental de la digitalisation des services culturels")*.[31] Based on the premise that cultural services have been widely digitised over recent years, the report looked into the impact of the consumption of digitised literary works, music, films and video games on the environment. The study is wider in terms of audiovisual works under scrutiny than most other studies, with the inclusion of video games and music, and more precise regarding the granularity of its impact assessment. It examines environmental impact beyond carbon emissions, as it also looks into ocean acidification, fine particles emissions, exhaustion of mineral and metallic resources, ecotoxicity of fresh water, ionising radiation[32] and water usage.

The granularity of ADEME's report highlights the fact that the environmental impact of the audiovisual sector goes further than carbon emissions. In addition to the findings of the Carbon Trust white paper, which indicated that the device on which content is viewed plays a significant part in causing more or less carbon emissions, the ADEME report found that the resolution used by the viewer also has a significant impact on all criteria used to evaluate environmental impact. On average, ADEME found that ultra-high definition caused a 51% increase in the environmental impact of streaming, due to increased use of data centres and networks.

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[28] Ibid.

[29] Kemna R., Wierda L., Li W., van den Boorn, R., van Elburg M., Viegand J., Wu A., ICT Impact study, July 2020.

[30] Montevecchi, F., Stickler, T., Hintemann, R., Hinterholzer, S., Energy-efficient Cloud Computing Technologies and Policies for an Eco-friendly Cloud Market - Final Study Report, 2020.

[31] Meyer J., Nico T., Burguburu A., Rigal M., Lizon B., Genin L., Catalan C., Adam I. "Evaluation de l'impact environnemental de la digitalisation des services culturels", 2022.
For more on digital consumption in France, see the "Référentiel des usages numériques" jointly developed by Arcom and Arcep (Regulatory Authority for Electronic Communications, Postal Affairs and Press Distribution).

[32] The emission of ionising radiations is a relevant indicator in the context of France, where the energy mix largely relies on nuclear power. It may not be a relevant metric in other countries.

Overall, the report found that physical media had the most important impact on the environment by a significant margin. The report, however, notes that unlike live streaming, the environmental impact of the DVD decreases each time it is used, as its environmental impact mostly comes from its production and not from its use. Watching a DVD several times would result in each viewing having a lower impact on the environment than the same film being streamed as many times (excluding variations in resolution).

Live streaming on TV was found to have the most important impact on the environment compared to live streaming a film on a laptop or on a smartphone. The three cases of live streaming had similar impacts on carbon emissions, with live streaming on TV having a far greater impact on mineral and metallic resources, emissions of ionising radiation, and water usage.

The meteoric rise of streaming at the expense of traditional forms of media consumption is not only due to the digitisation of pre-existing forms of media, but also to the ever-growing proportion of user-generated content (UGC) being consumed online.

In addition to the environmental impact of streaming UGC, assessing the environmental impact of creating UGC is particularly difficult, as it is extremely varied.

In 2022, a site called Green Streamers calculated that just five Twitch streamers generated an estimated 121,000 kg of CO_2 every day. Livestreaming high-resolution games is particularly demanding in terms of bandwidth and data centre usage. Quality may not be higher than watching a movie in UHD, but the gaming sector has been used to playing (in particular competitive online multiplayer games) at a higher frame rate, which implies that more frames are generated every second, both on the player's computer, and their viewers' device. High resolution and frame rate are often chosen by viewers, with an increased environmental impact as they require additional processing power.

2.3.2. The environmental impact of artificial intelligence

An important new factor in CO_2 emissions is artificial intelligence (AI). AI is not only used in the audiovisual sector, but it is quickly becoming an integral part of it. While AI can be used to optimise energy consumption in various sectors, including in data centres, the training of an AI system can be extremely energy-consuming. As noted in an article published in 2020 in Nature,[33] the training of a single Large Language Model (LLM) is equal to around 300,000 kg of CO_2 emissions.

An AI model like OpenAI's Sora, capable of generating video based on text prompts is among AI models with very high energy demands. As noted in an article on AI power consumption[34] published by Forbes in June 2024, the energetic needs of graphics processing units (GPU) used for machine training have drastically increased between the current and previous generation, translating into an augmented energy consumption of the AI model.

[33] Dhar P., "The carbon impact of artificial intelligence", *Nature, Nat Mach Intell 2, 423-425*, 2020.
[34] Kindig B., "AI Power Consumption: Rapidly Becoming Mission-Critical", *Forbes*, 20 June 2024.

Ultimately, the impact on the environment of AI depends on the sustainability of the energy sources on which the model relies.

CO_2 emissions are not the only environmental issue caused by generative AI. Major actors in the generative AI sectors acknowledge the growing need of their AI tools for semiconductors and their increasing water consumption.[35] As highlighted in Microsoft's 2022 Environmental Sustainability Report,[36] the company's global water consumption increased by 34% between 2021 and 2022, to nearly 6.4 million m^3.

As reported by AP News, the sharp increase could be due to AI research, as estimated by researchers. In an article published on the Organisation for Economic Co-operation's OECD.ai website, one such researcher noted that, in addition to air pollution and carbon emissions, AI model also consume a lot of water, via on-site server cooling and offsite electricity generation, with GPT-3 consuming an estimated 500 mL of water for every 10 to 50 inferences, depending on when the inference is made and where the model is hosted.[37] More recent models, like GPT-4, have a reportedly larger size and are hence likely to consume even more water than GPT-3.

[35] M. O'Brien, H. Fingerhut, Artificial intelligence technology behind ChatGPT was built in Iowa – with a lot of water, *AP*, 9 September 2023.
[36] Microsoft's 2022 Environmental Sustainability Report – Enabling sustainability for our company, our customers, and the world, 2022.
[37] S. Ren, How much water does AI consume? The public deserves to know, *OECD.AI*, November 30, 2023.

3. Incentivizing greener approaches: a look at legislation for audiovisual works

3.1. The Paris Agreement

The Paris Agreement[38] is a legally binding international treaty on climate change, adopted at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015, which entered into force on 4 November 2016.

Its goal is to limit the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. To that end, greenhouse gas emissions must peak before 2025 at the latest and decline by 43% by 2030.[39]

It works on a five-year cycle of increasingly ambitious climate action carried out by countries. Since 2020, countries have been submitting their nationally determined contributions (NDC), consisting of five-year national climate action plans. In their NDCs, countries indicate the actions that will be undertaken to reduce their GHG emissions and build resilience to adapt to the impact of climate change. Each successive NDC is meant to set forth increasingly ambitious objectives to reach the goal of limiting the global temperature increase to 1.5°C.

During the UN Climate Change Conference in Sharm El-Sheikh, Egypt, in November 2023, a cover decision[40] was taken to request each party to strengthen the 2030 targets in their NDCs to better account for different national circumstances.

The Paris Agreement does not mention the audiovisual sector, as it aims to have a global effect on all GHG-emitting human activities. However, it is the starting point for many pieces of legislation, at national and EU levels, aiming to limit GHG emissions and push all sectors of the industry and society to shift towards more sustainability.

[38] The Paris Agreement, United Nations, 12 December 2015.
[39] United Nations Climate Change website – What is the Paris Agreement?
[40] Decision -/CMA.4 – Sharm el-Sheikh Implementation Plan, United Nations, 20 November 2022.

3.2. Green legislation at EU level

3.2.1. The Regulation establishing the Creative Europe Programme (2021-2027)

The importance of tackling climate change is made clear in Regulation (EU) 2021/818 establishing the Creative Europe Programme (2021 to 2027),[41] with several references to climate change and sustainability.

The concept of sustainability is referenced in Recital 36, which reflects on the importance of "tackling climate change, in line with the EU's commitments to implement the Paris Agreement". It indicates that the Creative Europe Programme (the Programme) is intended to "contribute to mainstreaming climate actions and to the achievement of an overall target of 30 % of Union budget expenditure supporting climate objectives."

Article 3 on the Programme's objectives provides (Article 3(2)(b)) that one of the Programme's specific objectives is "to promote competitiveness, scalability, cooperation, innovation and sustainability, including through mobility, in the European audiovisual sector."

Article 18 establishes that the European Commission and member states shall ensure the Programme's overall consistency and complementarity with the relevant EU policies and programmes, including on environment and climate action.

3.2.2. The Audiovisual Media Services Directive

Directive 2018/1808, the Audiovisual Media Services Directive,[42] is the cornerstone of EU legislation regarding the audiovisual sector. However, it does not mention the sector's impact on the environment.

The environment is referred to only in Article 9(1)(iv) regarding audiovisual commercial communications, which establishes that member states shall ensure that audiovisual commercial communications provided by media service providers under their jurisdiction do not "encourage behaviour grossly prejudicial to the protection of the environment."

[41] Regulation (EU) 2021/818 of the European Parliament and of the Council of 20 May 2021 establishing the Creative Europe Programme (2021 to 2027).

[42] Directive (EU) 2018/1808 of the European Parliament and of the Council of 14 November 2018 amending Directive 2010/13/EU on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services (Audiovisual Media Services Directive).

3.2.3. The European Climate Law

Like any other entity, the various actors of the audiovisual sector are required to comply with non-sector specific legislation. In 2020, the European Commission approved a set of policy initiatives grouped under the name of the European Green Deal.[43] To achieve climate neutrality, EU member states will have to reduce emissions, invest in green technologies and protect the natural environment. By 2050, the European Union aims to become a net-zero emitter of greenhouse gases.

To write into law the goals set by the European Green Deal, the European Union adopted its first law on climate: Regulation 2021/1119, the European Climate Law.[44] Its Article 4(1) sets an intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels.

It sets a legally binding target of net zero greenhouse gas emissions by 2050 and includes measures to monitor progress and adjust actions at the EU level accordingly.

3.2.4. The Corporate Sustainability Reporting Directive

3.2.4.1. Relevant provisions in the CSRD

On 5 January 2023, the Corporate Sustainability Reporting Directive 2022/2464 (CSRD)[45] entered into force.

The CSRD modernises and strengthens the rules regarding the social and environmental information that companies must report. It requires large EU companies and non-EU companies with a substantial presence in the EU, as well as a list of specific small and medium enterprises, to report on a comprehensive set of environmental, social and governance metrics.

It replaces the Non-Financial Reporting Directive 2014/95/EU (NFRD)[46] which introduced obligations for companies to report on their activities related to environmental and social matters and to improve transparency regarding corporate governance, among other key issues. The NFRD had set reporting obligations on a number of issues, , with the provision of environmental information already being one of its key components. Its Recital 7 provided additional insight as to the type of information regarding the environmental

[43] European Commission website: The European Green Deal.
[44] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law').
[45] Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting.
[46] Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups.

impact of the company, with references to the use of renewable and non-renewable energy, greenhouse gas emissions, water use and air pollution.

The CSRD went further by introducing the key concept of "double materiality", which translates into reporting on how a company's activities impact the environment and how they are affected by it.

By way of amending Directive 2013/34/EU, relative to financial statements, consolidated financial statements and related reports of certain types of undertakings,[47] the CSRD imposes reporting obligations on environmental issues (Article 29b (2)(a)), as well as the impact of each undertaking on the environment including any damages it causes and the ease with which it can be remediated.

The precise information that must be contained in the sustainability reporting, according to Article 29b (2)(a), is the following:

- climate change mitigation and greenhouse gas emissions;
- climate change adaptation;
- water and marine resources;
- resource use and the circular economy;
- pollution;
- biodiversity and ecosystems;

The CSRD differs most from the NFRD regarding its scope of application. The NFRD's reporting obligation was limited to companies with more than 500 employees. Under the CSRD, companies with more than 250 employees and all listed companies will be required to provide information. According to estimates, this change in scope will place up to 50,000 companies under the remit of the CSRD, while 11,000 fell under the remit of the NFRD.[48]

Under the CSRD, actors of the audiovisual sector qualifying as undertakings established in the EU (Article 19a amended Directive 2013/34/EU) and non-EU undertakings (Article 40a amended Directive 2013/34/EU) generating a net turnover of more than EUR 150 million in the EU in the preceding financial year are required to comply with the reporting obligations. Branches of non-EU undertakings with a turnover of more than EUR 40 million are also be considered as 'large undertakings' and must comply with the obligations laid out in the CSRD (Article 40a amended Directive 2013/34/EU).

The deadline for the national transposition of the CSRD was set to 6 July 2024. At the time of writing, legal texts transposing the CSRD have been identified in 19 member states.[49]

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[47] Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC.

[48] Anderson K., "What is the Non-Financial Reporting Directive (NFRD)?", *Greenly*, 17 June 2024.

[49] On the basis of publicly accessible information available on EUR-Lex (accessed on 10 March 2025), the 19 member states which have partially or fully transposed the CSRD are Belgium, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Sweden.

3.2.4.2. The CSRD's impact on the audiovisual sector

It is too early, at the time of writing, to reflect on the impact of the CSRD on stakeholders in the audiovisual sector. Transposition is still incomplete in many EU member states, and the member states that have transposed the directive have introduced reporting requirements starting in 2025.

The CSRD can, however, be expected to have an influence on the actors of the audiovisual sector, reaching further than the EU, as it will also apply to certain non-EU companies operating in the EU that meet the criteria identified above.

Reflecting on the impact of the CSRD on the audiovisual world, green production specialist TheGreenShot[50] noted that preparing for the CSRD highlighted unique and specific challenges related to production, post-production and distribution in the broadcasting industry.

Optimising energy use on sets, minimising waste generated by the sets themselves, props, costumes, and sustainably managing the logistics of filming are essential in an industry that mobilises considerable resources, uses energy-intensive equipment and often requires large teams to travel long distances.

3.2.5. The Energy Efficiency Directive

3.2.5.1. Relevant provisions in the EED

In 2023, the Energy Efficiency Directive 2023/1791 (EED)[51] was adopted. The EED is a revision of a proposal for a recast directive on energy efficiency put forward by the Commission in July 2021, as part of the Green Deal package. As a part of the Fit for 55[52] package, the 2021 proposal for a recast of the directive amending the Efficiency Directive 2018/2002 included energy efficiency targets, which were raised further, following the REPowerEU Plan[53] in May 2022.

The EED introduces a series of measures to help accelerate energy efficiency, including establishing an EU legally binding target to reduce the EU's final energy consumption by 11.7% by 2030 (relative to the 2020 reference scenario). To achieve this target, EU member states must set indicative national contributions based on objective criteria reflecting national circumstances.

As is the case with the CSRD, the EED does not specifically target the audiovisual sector, but some actors in that sector may be affected.

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[50] Deflandre G., Understanding and Preparing for the EU CSRD in 2024: All You Need to Know, *TheGreenShot*, 18 March 2024.
[51] Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955.
[52] European Council website: European Union's Fit for 55 package.
[53] European Commission website: REPowerEU Plan.

Recitals of the EED highlight the electricity consumption of data centres in the EU and the need for "highly energy-efficient and sustainable data centres" (Recital 13) and that member states should require the collection of data relevant for the energy performance and water footprint of data centres (Recital 85).

Article 2(49), defining "data centre" refers to Regulation (EC) No 1099/2008 on energy statistics[54]. In its Annex A, point 2.6.3.1.16, the Regulation defines a data centre as "a structure or a group of structures used to house, connect and operate computer systems/servers and associated equipment for data storage, processing and/or distribution, as well as related activities."

Article 12(1) establishes that member states "shall require owners and operators of data centres in their territory with a power demand of the installed information technology (IT) of at least 500kW" to make information set out in Annex VII publicly available. The information includes:

- the names of the data centre, its owner and its operators; the date when it started operating and the municipality where it is based;
- the floor area of the data centre, the installed power, the annual incoming and outgoing data traffic, and the amount of data stored and processed within the data centre;
- the performance during the last full calendar year, of the data centre in accordance with key performance indicators about, inter alia, energy consumption, power utilisation, temperature set points, waste heat utilisation, water usage and use of renewable energy.

Article 26(6) provides that "data centres with a total rated energy input exceeding 1 MW must utilise the waste heat or other waste heat recovery applications unless they can show that it is not technically or economically feasible."

The deadline for the national transposition of the EED was set for 11 October 2025. At the time of writing, prior to the national transposition deadline, legal texts transposing the EED at national level had been identified in 10 member states.[55]

3.2.5.2. The EED's impact on the audiovisual sector

With a transposition deadline set for 11 October 2025, it is not possible to assess the impact of the EED at the time of writing. However, its objective to provide EU member states with "highly energy-efficient and sustainable data centres" is expected to have a significant influence on the environmental impact of streaming in the EU, as the latter is largely dependent on the sustainability of the energy source powering the data centres.

[54] Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics.

[55] On the basis of publicly accessible information available on EUR-Lex (accessed on 10 March 2025), the 10 member states which have partially or fully transposed the EED are Austria, Belgium, Czechia, Finland, France, Greece, Italy, Latvia, the Netherlands and Portugal.

3.2.6. Other EU legal tools

Other EU directives and regulations may also influence the environmental impact of the audiovisual sector such as:

- Directive (EU) 2018/410 on cost-effective emission reductions and low-carbon investments;[56]
- Commission Delegated Regulation (EU) 2019/2015 on energy labelling of light sources;[57]
- Commission Regulation (EU) 2019/2020 laying down ecodesign requirements for light sources and separate control gears.[58]

If none of the above are sector-specific pieces of legislation, they all impact the audiovisual sector, whether directly or indirectly. Regulations regarding energy labelling of light sources and ecodesign requirements have a significant indirect impact on the environmental impact of film production, which requires extensive lighting.

Neither Directive (EU) 2018/410 nor Regulation 2019/2020 mentions the audiovisual sector. Delegated Regulation (EU) 2019/2015 makes one mention of the term "film" only to grant an exemption for film, video projection and holography, in its Annex IV, paragraph 3(b). This, however, has no impact on the rest of lighting sources used in filmmaking, which still fall under the scope of the Delegated Regulation. In laying down the legal foundation for more sustainable light sources and their labelling, they may help productions transition to reducing their carbon footprint, by fostering the development of sustainable options and ensuring that their energy consumption is labelled correctly.

3.3. National transpositions

With the transposition deadline of the CSRD set for 6 July 2024 and the EED's transposition deadline set for 11 October 2025, not all EU countries have transposed each directive at the time of writing.

Neither directive relates specifically to the audiovisual sector, but both impact how the various actors of the sector conduct their activities. In the case of the CSRD, all actors in the audiovisual sector that fall under the category of large undertakings established in the EU or branches of non-EU undertakings considered large undertakings are required to report sustainability matters.

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[56] Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814.

[57] Commission Delegated Regulation (EU) 2019/2015 of 11 March 2019 supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of light sources and repealing Commission Delegated Regulation (EU) No 874/2012.

[58] Commission Regulation (EU) 2019/2020 of 1 October 2019 laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012.

The EED, on the other hand, provides for distinct obligations for data centres, which are central to the current media landscape.

3.3.1. Selected examples of national transpositions of the CSRD

3.3.1.1. Czechia

In November 2023, a consolidation package amending several laws incorporated the CSRD into Czech law. This consolidation package constitutes the first phase in a two-step transposition process. An amendment to *Zákon č. 563/1991 Sb., o účetnictví* (Act No. 563/1991 on accounting)[59] introduced new obligations which will gradually impact companies established or operating in Czechia. Under the new provisions in the consolidation package, sustainability reporting obligations apply to companies with reporting obligations under the NFRD. The obligation came into force on 1 January 2024.

A second phase is planned to extend the reporting obligations to the rest of the eligible companies with application starting in 2026, based on the activity of the financial year 2025.

3.3.1.2. Denmark

In Denmark, the CSRD was transposed by *Lov nr. 480 af 22. maj 2024 om ændring af årsregnskabsloven, revisorloven og forskellige andre love* (Act No 480 of 22 May 2024 amending the Financial Statements Act, the Auditors Act and various other Acts).[60]

The transposition follows a step-by-step approach, requiring the largest companies to start the reporting as early as 2025 (based on data from the year prior), with some state-owned limited liability companies, listed small and medium enterprises and subsidiaries and branches of companies and groups with parent companies established outside the EU and EEA to follow in the next years.

3.3.1.3. France

France was the first country to transpose the CSRD, with *Ordonnance n°2023-1142 du 6 décembre 2023 (*Ordinance No 2023-1142 of 6 December 2023)[61] and *Décret n° 2023-1394*

[59] *Zákon č. 563/1991 Sb., o účetnictví* (Act No. 563/1991 on accounting)
For further reading, see Kinstellar's insights on the transposition of the CSRD in the Czech Republic.
[60] *Lov nr. 480 af 22. maj 2024 om ændring af årsregnskabsloven, revisorloven og forskellige andre love (*Act No 480 of 22 May 2024 amending the Financial Statements Act, the Auditors Act and various other Acts).
[61] *Ordonnance n° 2023-1142 du 6 décembre 2023 relative à la publication et à la certification d'informations en matière de durabilité et aux obligations environnementales, sociales et de gouvernement d'entreprise des sociétés*

*du 30 décembre 2023 (*Decree No 2023-1394 of 30 December 2023).[62] The Ordinance introduces the obligation for French companies to produce yearly sustainability reports, which will gradually replace the *déclaration de performance extra financière* (extra-financial performance declaration, DPEF) that they were previously required to produce in application of *Décret n° 2017-1265 du 9 août 2017 (*Decree No. 2017-1265 of 9 August 9 2017) concerning the publication of non-financial information by certain large companies and certain groups of companies[63] and transposing the NFRD.

Large and parent companies of large groups will be affected first, starting in 2025 (reporting on the prior year). Small and medium-sized companies listed on a regulated market will follow starting in 2026 (with a possible deferral for two years). Certain companies established outside the European Union will also be required to publish those reports.

The threshold for companies to be considered as large companies is expected to be raised in the short term, to account for a modification of Directive 2013/34/EU on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings,[64] which has not been considered in the French law transposing the CSRD.

3.3.1.4. Romania

In Romania, the CSRD was transposed by *Ordin nr. 85 din 12 ianuarie 2024 pentru reglementarea aspectelor referitoare la raportarea privind durabilitatea* (Order No 85 of 12 January 12 2024 for the regulation of sustainability reporting issues).[65]

The implementation of the reporting obligation by companies partially relies on their qualification as medium or large enterprises, or as parent companies of a large group exceeding thresholds for total assets value, net turnover and average number of employees. Starting in 2025, public-interest enterprises with more than 500 employees and public-

commerciales (Ordinance No. 2023-1142 of December 6, 2023 relating to the publication and certification of information on sustainability and the environmental, social and corporate governance obligations of commercial companies).

[62] *Décret n° 2023-1394 du 30 décembre 2023 pris en application de l'ordonnance n° 2023-1142 du 6 décembre 2023 relative à la publication et à la certification d'informations en matière de durabilité et aux obligations environnementales, sociales et de gouvernement d'entreprise des sociétés commerciales* (Decree No. 2023-1394 of December 30, 2023 taken in application of Ordinance No. 2023-1142 of December 6, 2023 relating to the publication and certification of information on sustainability and the environmental, social and corporate governance obligations of commercial companies).

[63] *Décret n° 2017-1265 du 9 août 2017 pris pour l'application de l'ordonnance n° 2017-1180 du 19 juillet 2017 relative à la publication d'informations non financières par certaines grandes entreprises et certains groupes d'entreprises* (Decree No. 2017-1265 of August 9, 2017 issued for the application of Ordinance No. 2017-1180 of July 19, 2017 relating to the publication of non-financial information by certain large companies and certain groups of companies).

[64] Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC.

[65] *ORDIN nr. 85 din 12 ianuarie 2024 pentru reglementarea aspectelor referitoare la raportarea privind durabilitatea* (Order No 85 of 12 January 12 2024 for the regulation of sustainability reporting issues).

interest entities that are parent companies of a large group with more than 500 employees will be required to report on their sustainability efforts (reporting on the year prior).

Starting in 2026, non-public medium and large enterprises, and non-public parent companies of large groups will also be required to report on their sustainability efforts. Enterprises listed on regulated markets not meeting the size criteria of the previous categories will have to start reporting in 2027.

The last category concerns Romanian branches or subsidiaries whose ultimate parent companies are established in third countries, which will be required to start reporting in 2029.

3.3.2. Selected examples of national transpositions of the EED

3.3.2.1. Austria

In Austria, the *Änderung des Bundes-Energieeffizienzgesetzes, BGBl. I Nr. 29/2024* (Amendment to the Federal Energy Efficiency Act, Federal Law Gazette I No. 29/2024)[66] transposed the EED on 17 April 2024.

The amendment adds references to data centres and the definition from Regulation (EC) No 1099/2008. Since 15 May 2024, owners and operators of data centres with an electrical output of at least 500 kW are required to publish certain information, except for information that is subject to confidentiality obligations or trade and business secrets.

The information to disclose includes the names of the data centre, its owner and its operator, the date of commissioning of the data centre and the municipality in which it is located, its surface area, installed capacity, annual incoming and outgoing data traffic and amount of data stored and processed.

Key performance indicators regarding the data centre's energy efficiency are also required, particularly for energy consumption, electricity use, temperature setpoints, waste heat utilisation, water consumption and the data centre's use of renewable energies.

3.3.2.2. Belgium

At the time of writing, the EED had not been transposed in all Belgian Regions. The EED was transposed in the Brussels-Capital Region legal framework by the *Ordonnance modifiant l'ordonnance du 2 mai 2013* (Ordinance amending the Order of 2 May 2013)[67]. It was

[66] *Änderung des Bundes-Energieeffizienzgesetzes, BGBl. I Nr. 29/2024* (Amendment to the Federal Energy Efficiency Act, Federal Law Gazette I No. 29/2024)

[67] *Ordonnance modifiant l'ordonnance du 2 mai 2013 portant le Code bruxellois de l'Air, du Climat et de la Maîtrise de l'Energie en vue de mettre en oeuvre la stratégie de rénovation du bâti* (Ordinance amending the ordinance of 2

transposed in Flanders by the amended *Energiedecreet van 8 mei 2009* (Energy Decree of 8 May 2009) as regards the one-stop shop for the application, treatment, processing and payment of building premiums or premiums for energy generation installations and introducing a reporting obligation for data centres.[68]

The Flemish Decree reintroduces an obligation on owners and operators of data centres to provide yearly information about the energy performance of those data centres, which had been abolished by the Decree of 10 March 2017.

The Order amending the Brussels Code for Air, Climate and Energy Management adds the definition of a data centre from Regulation (EC) No 1099/2008, which is referenced in the EED, and introduces the obligation for data centres with a capacity of more than 500 kW to report on their final energy consumption and sustainability indicators.

3.3.2.3. The Netherlands

In the Netherlands, the EED was transposed by the Decree of 26 April 2024, amending the Living Environment Activities Decree and the Environmental Decree.[69]

It introduces reporting obligations regarding data centres with an electrical output of more than 500 kW, including the name and address of the person performing the activity, the name and address of the data centre, the date at which the activity started, the capacity in kilowatts, the floor area, and data relative to its energy performance (including energy use, water consumption in cubic meters, residual heat use, temperature set points, use of renewable energy and amount of data stored).

May 2013 relating to the Brussels Air, Climate and Energy Management Code with a view to implementing the building renovation strategy).

[68] *Decreet tot wijziging van het Energiedecreet van 8 mei 2009, wat betreft het uniek loket voor de aanvraag, behandeling, verwerking en uitbetaling van gebouwpremies of premies voor energieopwekkingsinstallaties en tot instelling van een rapportageverplichting voor datacentra* (Decree amending the Energy Decree of 8 May 2009, as regards the single counter for the application, handling, processing and payment of building premiums or premiums for energy generation installations and establishing a reporting obligation for data centres).

[69] *Besluit van 26 april 2024 tot wijziging van het Besluit activiteiten leefomgeving en het Omgevingsbesluit in verband met de implementatie van artikel 12 van richtlijn (EU) 2023/1791 van het Europees Parlement en de Raad van 13 september 2023 betreffende energie-efficiëntie en tot wijziging van Verordening (EU) 2023/955 (herschikking) (Pb EU 2023, L 231)*(Decision of 26 April 2024 amending the Environmental Activities Decree and the Environmental Decree in connection with the implementation of Article 12 of Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast) (OJ EU 2023, L 231))

4. Sustainability in national law and film funding criteria

Some EU member states, like France and Germany (among others), have laws on sustainability which are not transpositions of the CSRD or the EED. With the exception of the French case to a certain extent, which will be explored below, they are often not specific to the audiovisual sector, but may have an influence on its actors.

Similarly to what is foreseen in the CSRD, many countries have environmental, social and governance (ESG) laws that impose reporting obligations on certain companies. Those obligations do not specifically target the audiovisual sector, but they apply to all actors of the sector, provided they meet certain size and turnover criteria.

A growing proportion of film funds have started looking into ways to foster sustainability in film production. Many film funds now provide toolkits and guides for sustainability in production. Some include environmentally friendly measures to be implemented as prerequisites for granting additional funding or any funding at all, or where the inclusion of such initiatives will boost the applicant's chances of obtaining funding.

Different approaches may be identified towards promoting sustainability through their film funds. Sometimes, meeting sustainability criteria is a prerequisite that will render the applicant ineligible if they are not met. They can also be optional but play a part in raising the rating of the production, which will in turn raise its chances of being funded. In other cases, meeting sustainability criteria can lead to additional funding being granted.

Other funding schemes, such as Creative Europe's MEDIA Programme (as foreseen in Regulation (EU) 2021/818) and the Council of Europe's Eurimages have also started to implement sustainability criteria.

4.1. Selected national examples

4.1.1. Austria

4.1.1.1. Sustainability in national legislation

The new Austrian Film Location Act 2023, together with the amendment to the Film Funding Act 2023, serves to strengthen Austria as a film location and aims for promoting international films and series as well as Austrian TV and streaming productions and cinema feature films.

Therefore, the Film Location Act 2023 (*Bundesgesetz zur Stärkung und Internationalisierung des Filmstandortes Österreich (Filmstandortgesetz 2023)*), further referred

to as Film Location Austria FISA+) was enacted[70] and the Film Funding Act 2023 (*Bundesgesetz über die Förderung des österreichischen Films (Filmförderungsgesetz)),* further referred to as Film Funding Act 2023 was amended[71] to that effect.

Film Location Austria FISA+,[72] the funding system for films of the Austrian Federal Ministry of Labor and Economy, is responsible for Austrian TV, streaming productions and service productions.

The Austrian Film Institute (*Österreichisches Filminstitut*, ÖFI) as a nationwide film funding institution, is funding the production, distribution and promotion of national cinema films and co-productions as cultural assets and art forms, thereby contributing to the strengthening of the Austrian film industry, of Austria as a film location and of the creative-artistic quality of Austrian films as a prerequisite for their transnational success (Article 1 of the Film Funding Act 2023). It plays a pivotal role in nurturing the Austrian film industry through both selective and automatic funding (reference funding and ÖFI+) mechanisms, ensuring that a wide range of genres receive the necessary backing as a legal entity under public law.

The ÖFI actively promotes green producing, cultural diversity, and gender equality, and elevates the international profile of Austrian cinema through strategic partnerships like participation in global festivals. Its funding programs are designed to support both established filmmakers and emerging talent, ensuring the growth and sustainability of the national film landscape. The ÖFI created an elaborated incentive system for green filming and to enhance gender balance.

The ÖFI is closely related to the Federal Ministry for Arts, Culture, Civil Service and Sport (*Bundesministerium für Kunst, Kultur, öffentlichen Dienst und Sport*).

Article 1(2) No 7 of the Film Location Austria (FISA+) refers to the creation of incentives for ecological film production as one of its objectives.

Article 2(1)(h) of the Film Funding Act, as amended in 2023, adds a reference to the role of ÖFI to create incentives for ecologically sustainable film production.

Similarly, pursuant to the federal act entitled "*Bundesgesetz, mit dem ein Filmstandortgesetz 2023 erlassen wird und das Filmförderungsgesetz und das KommAustria-Gesetz geändert werden*",[73] Article 2(4) of the Film Location Austria FISA+ and Article 2(5) of the Film Funding Act provide for an automatic scheme ÖFI+, with a maximum subsidy of 30% of the production costs incurred in Austria, with the possibility of an additional 5% Green Bonus in case of compliance with ecological sustainability criteria specified by the ÖFI and for Film Location Austria (FISA+).

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[70] Film Location Act 2023 (*Bundesgesetz zur Stärkung und Internationalisierung des Filmstandortes Österreich, Filmstandortgesetz 2023*), enacted by Article 1 of the *Bundesgesetz, mit dem ein Filmstandortgesetz 2023 erlassen wird und das Filmförderungsgesetz und das KommAustria-Gesetz geändert werden,* BGBl. I Nr. 219/2022 (in German).

[71] Film Funding Act 2023 (*Bundesgesetz über die Förderung des österreichischen Films (Filmförderungsgesetz),*amended by Article 2 of the *Bundesgesetz, mit dem ein Filmstandortgesetz 2023 erlassen wird und das Filmförderungsgesetz und das KommAustria-Gesetz geändert werden,* BGBl. I Nr. 219/2022).

[72] FISA+ website and FISA+ Guidelines (*Förderungsrichtlinien „FISA+"*).

[73] Federal law enacting a Film Location Act 2023 and amending the Film Funding Act and the KommAustria Act (*Bundesgesetz, mit dem ein Filmstandortgesetz 2023 erlassen wird und das Filmförderungsgesetz und das KommAustria-Gesetz geändert werden*) (in German).

With reference to the provisions of the same federal act, the ÖFI, in cooperation with Evergreen Prisma - Competence Center for Green Filming Europe[74] established by the Lower Austrian Film Commission (LAFC), and the Association of Green Film Consultants Austria (*Verband Green Film Consultants* Austria, VGFCA),[75] has developed the Catalogue of Criteria for Minimum Ecological Standards for Austrian Cinema Film Productions ÖFI/ÖFI+[76] which FISA+ has also adopted in its funding-regulations.

4.1.1.2. Sustainability in film fund criteria

Since 2018, the continuous implementation of sustainable filmmaking in Austria has been based on a "Synergy Model for Green Filming and Funding"[77] by Evergreen Prisma, which enables institutions and filmmakers to work hand in hand via a system of interlocking essential and professional instruments. Evergreen Prisma – Competence Center for Green Filming Europe, first established a cooperative and active base: developing its "intelligent swarm" since 2018, it empowered cooperative partners by knowledge transfer, supported talents, defined roles and needs. That systemic and systematic approach led to innovative, complementing structures of joint forces for a practicable, high-quality standard for green filming and funding. By now, the existing synergy system for green filming and funding in Austria consists of five components, built up by the Evergreen Prisma's Joint Network:

- competence through knowledge transfer and instruments;
- professional green film consultancy and green filming projects;
- catalogue of measures and funding incentives ÖFI/ÖFI+;
- verification, inspection and evaluation System by the Green Filming Department of the ÖFI;
- joint (inter)national network.

Thanks to Evergreen Prisma's evolutionary work and collaboration since 2020, the foundation was laid for the ÖFI to correspond with a monetary "Green Funding",[78] when the Film Funding Act was amended in 2023. A complex incentive for sustainable film production was created, that grants a 5% Green Bonus based on Evergreen Prisma´s instruments, meeting quality-demanding criteria, credible processes, applied by trained experts.

In cooperation with Evergreen Prisma, the ÖFI has implemented Green Filming in their funding regulations since 2021. In the beginning of the development (Level 1), the ÖFI has been implementing a mandatory "Final Green Report" for every funded project in

[74] Evergreen Prisma – Competence Center for Green Filming Europe established by the Lower Austrian Film Commission (LAFC) (in English).
[75] VGFCA website.
[76] ÖFI website - Green Filming / Funding: Catalogue of Criteria of Minimum Ecological Standards for Austrian Cinema Film Productions ÖFI/ÖFI+ (in English).
[77] Evergreen Prisma website: Evergreen Prisma's Synergy System for Green Filming & Funding (in English).
[78] ÖFI website: Green Filming / Funding (in English).

production and regulations for funded films in development. The guidelines and regulations were based on the Austrian Ecolabel for Green Producing in Film and Television (UZ76).[79]

The further advancement of the ÖFI Catalogue of Criteria (Level 1), based on the UZ76 of the Austrian Ecolabel, was made necessary by the rapid developments and introduction of the Film Funding Act 2023 including the Green Bonus 5% regulations of the additional automatic scheme ÖFI+ in 2023.

The first steps towards harmonization were taken in the creation and development of the Catalogue of Criteria for the Minimum Ecological Standards for Austrian Cinema Film Productions ÖFI/ÖFI+ (Level 2) with a view to future transnational coordination.

The formulation of the criteria sets Austria-specific priorities, while the clear structure of the mandatory and target criteria shows an initial transnational harmonisation strategy for co-productions together with Germany and other countries in Europe. In the meantime, other European countries (the Nordics) are also developing their criteria on a country-specific and harmonised basis.

The introduction of nationally binding film funding regulations in Germany and the establishment of Ecological Standards for German Cinema, TV and Online/VoD Productions[80] as a uniform standard for the realisation of German film projects has made it necessary to find cross-border solutions for joint co-productions and to work hand in hand also in a transnational context. Therefore, in 2022, Evergreen Prisma founded the working group CO/PRO-EUROPE for transnational harmonization with countries which have already implemented high-quality regulations and use similar instruments, and also to give the film production companies a planning security. The ÖFI is part of this working group since the beginning, as it considers pan-European cooperation to be the most important topic for co-productions

In the framework of the Evergreen Prisma Academy and its program for knowledge transfer, Evergreen Prisma, in cooperation with Philip Gassmann, has been educating filmmakers to become professional Green Consultants for Film & TV since 2021. As of 2024, about 90 persons (63% of whom are women) have successfully completed the professional training on this new film profession and were certified as specialists.

The Green Film Consultant Austria (GFCA) training of the Evergreen Prisma Academy is complex and country-specific with a strong international focus, and employs Evergreen Prisma´s premium toolbox. In 2021, the Association of the Green Film Consultants Austria[81] (VGFCA) was founded.

Two institutional green film consultants have been trained for the ÖFI. In January 2023, the ÖFI established a specific Green Filming Department.

In 2023, a specific practice-transfer was launched especially for professional Green Film Consultants of the Evergreen Prisma Academy. Evergreen Prisma continuously launches yearly pilot projects and also organises creative labs for up-and-coming-talents.

[79] Green Producing in Film und Fernsehen UZ 76 (in German).
[80] Ecological Standards for German Cinema, TV, and Online/VOD Productions (in English).
[81] VGFCA website.

The work of the trained Green Film Consultants is essential in the Austrian synergy system for green filming and funding. Due to the in-depth training by Evergreen Prisma in cooperation with the international expert Philip Gassmann, they are enabled to competently align film productions in Austria and abroad in a sustainable way, and to accompany their implementation with effective measures and work in institutions as green funding experts.

In addition to the implementation and harmonization of a catalogue of mandatory criteria and a mandatory Final Green Report, the involvement of a Green Film Consultant in the specific project is mandatory. Since 2021, the ÖFI has also implemented that the calculation and the eligibility of additional costs is possible for all Austrian funded films. This is also harmonised with other Austrian funding institutions, like FISA+, Film Fund Vienna[82] (*Filmfonds Wien*), the film department of Federal Ministry for Arts, Culture, Public Service and Sport and the ORF (*Österreichischer Rundfunk*, Austrian Broadcasting Cooperation).

A certification can also be obtained for a specific film project. The Austrian Ecolabel agency set out guidelines for "Green Producing in Film and Television" (UZ76). It is a product certification for which film production companies can become licence holders. Funded film projects can decide if they want to get certificated. The costs are eligible at the moment.

In addition to all these harmonized regulations, the ÖFI has also developed a specific Criteria Catalogue of Minimum Ecological Standards for the Austrian Distribution Funding for Cinema Releases ÖFI+,[83] because also the distributors can be given a 5% Green Bonus for an ecologically sustainable cinema release.

On 1 January 2025, the ÖFI released the Catalogue of Criteria of Ecological Minimum Standards for Animation Films,[84] being mentioned for the first time in a legal act (ÖFI's funding regulations and the ÖFI+ automatic funding scheme).

The Film Department in the Federal Ministry for Arts, Culture, Public Service and Sport (*Bundesministerium für Kunst, Kultur, öffentlichen Dienst und Sport*), which focuses on the funding of avant-garde and experimental films as well as innovative animation, documentaries and feature films,[85] recommends considering the production requirements established in UZ76. For films that are funded together with the ÖFI+ automatic funding scheme, the rules of Green Filming of the ÖFI apply.

[82] Film Fund Vienna (*Filmfonds Wien*) website.
[83] Criteria Catalogue of Ecological Minimum Standards for the Austrian distribution Funding for Cinema Releases ÖFI+ (2024 version, in English).
[84] Catalogue of Criteria of Ecological Minimum Standards for Animation Films (in English).
[85] BMKOES website – Film.

4.1.2. France

4.1.2.1. Sustainability in national legislation

On 15 November 2021, the French *Assemblée nationale* (National Assembly) and the *Sénat* (Senate) adopted *Loi n° 2021-1485 du 15 novembre 2021 visant à réduire l'empreinte environnementale du numérique en France*[86] (Law 2021-1485 of 15 November 2021 aiming to reduce the carbon footprint of digital technology in France, Law REEN). The law's main goal is to create a synergy between digital and ecological transitions. Its provisions are separated into five categories, translating a set of objectives to achieve the law's primary goal:

- Raise awareness of the digital sector's impact on the environment;
- Reduce the frequency of purchasing new digital devices;
- Foster ecologically responsible digital practices;
- Promote data centres and networks that consume less energy;
- Promote a responsible digital strategy in French territory.

There is no mention of the term "audiovisual" in Law REEN, but its focus on the digital sector has a direct influence on many aspects and actors of the current audiovisual sector, in which digital players and means of distribution occupy a central position.

To raise awareness of the digital sector's impact on the environment, Articles 1 and 2 of Law REEN introduce modifications to the *Code de l'Education*[87] (Education Code). They envisage courses for children on digital sobriety and the impact of digital devices on the environment. Article 3 also provides that a module on the eco-development of digital services shall be included in all engineering curricula.

Article 4 provides for the creation of an observatory of the digital sector's environmental impacts, under the supervision of ADEME and the *Autorité de régulation des communications électroniques, des postes et de la distribution de la presse*[88] (Regulatory Authority for Electronic Communications, Postal Affairs and Press Distribution, ARCEP).

In order to reduce the need for consumers to purchase new digital devices, Articles 5 to 11 modify the *Code de la consommation*[89] (Consumer Code). Modifications include making the *délit d'obsolescence programmée* (crime of planned obsolescence) easier to prosecute and reinforcing dispositions against software obsolescence.

To foster ecologically responsible digital practices, Article 25 foresees the definition by ARCEP and the *Autorité de régulation de la communication audiovisuelle et numérique* (the

[86] *LOI n° 2021-1485 du 15 novembre 2021 visant à réduire l'empreinte environnementale du numérique en France* (Law 2021-1485 of 15 November 2021 aiming to reduce the carbon footprint of digital technology in France).
[87] *Code de l'éducation* (Education Code).
[88] Website of the *Autorité de régulation des communications électroniques, des postes et de la distribution de la presse* (Regulatory Authority for Electronic Communications, Postal Affairs and Press Distribution).
[89] *Code de la consommation* (Consumer Code).

national media regulatory authority, Arcom) of a general reference framework for eco-development of digital services setting criteria for the sustainable development of websites.

The Law REEN also includes measures aimed at reducing the energy consumption of data centres and networks, including by reinforcing the environmental conditions to be met by data centres to be eligible for a reduction of the *taxe intérieure de consommation finale d'électricité*[90] (domestic final electricity consumption tax).

The final chapter of Law REEN deals with the promotion of a responsible digital strategy over the French territory, which includes a requirement, set by Article 35, for each municipality of 50,000 inhabitants or more to define, by 1 January 2025 at the latest, a responsible digital strategy with objectives to reduce the environmental impact of the digital sector and measures to reach that goal.

Arcom published *Recommandation de l'Arcom sur l'article 26 de la loi visant à réduire l'empreinte environnementale du numérique*[91] (Arcom recommendation on article 26 of the law aimed at reducing the environmental footprint of digital technology) on 26 July 2023. In order to produce the recommendation, Arcom engaged in a phase of concertation with ARCEP and ADEME, as well as a public consultation[92] on 1 December 2022 to gather the views of all actors. The recommendation makes several suggestions for broadcasters as well as VOD and VSP providers to better inform their users.

It recommends publishing information to inform users about the environmental impact of audiovisual content:

- General information, made publicly available and accessible on the role of:
    - Each actor of the value chain in the environmental impact (device manufacturers, networks, data centres, audiovisual services, users, etc);
    - Technical factors that come into play (image quality, technical access modalities);
    - The device used to watch audiovisual content (screen size, frame rate, network used).
- General quantitative information, to be enriched depending on the availability of reliable data on the matter (to be assessed with ADEME)
- Information on actions undertaken by broadcasters, VOD providers and VSP providers to reduce their impact on the environment (such as the use of efficient codecs, cache servers, efforts on website design efficiency, commitments towards advertising, use of more energy-efficient technologies, etc);

[90] *Loi n° 2020-1721 du 29 décembre 2020 de finances pour 2021* (Law No. 2020-1721 of December 29, 2020 on finances for 2021).

[91] *Recommandation de l'Arcom sur l'article 26 de la loi visant à réduire l'empreinte environnementale du numérique* (Arcom recommendation on article 26 of the law aimed at reducing the environmental footprint of digital technology), 13 September 2023.

[92] *Consultation publique préalable à la publication d'une recommandation visant à informer les usagers de services audiovisuels de la consommation d'énergie et d'équivalents d'émissions de gaz à effet de serre liées à la consommation des données sur ces services* (Public consultation prior to the publication of a recommendation aimed at informing users of audiovisual services of the energy consumption and greenhouse gas emissions equivalents linked to the consumption of data on these services), December 2022.

- Educational information to help users reduce their impact (such as turning off devices after use and accessing fixed networks over mobile when available).

It also recommends that broadcasters, VOD and VSP providers engage in joint communication campaigns to raise awareness of the environmental impact of audiovisual content.

Arcom makes three additional suggestions for broadcasters, VOD providers and VSP providers:

- Give users easy access to image quality settings and suggest the use of energy-efficient parameters, ideally by providing an easy-to-access "energy-efficient" mode which takes into account the specificities of use (screen size, network used);
- Develop a standard methodology to evaluate the environmental impact of audiovisual usage;
- Report to Arcom, on a yearly basis, on their implementation of the dispositions of the recommendation and the results achieved.

4.1.2.2. Sustainability in film fund criteria

Following the Paris Agreement in 2015 and the European Green Deal, the *Centre national du cinéma et de l'image animée* (National Centre of Cinema, CNC) has developed an action plan called *Plan Action !*[93] embedded in the national ecological transition strategy of the French Ministry of Culture.

Actions to be undertaken by the CNC fall under three categories:

- Acting as a monitor of the ecological transition by collecting and analysing data to efficiently follow the environmental impact of the sector;
- Training students and raising their awareness of the challenges of eco-production;
- Progressively conditioning financial support on the provision by producers of carbon emission overviews.

Since 1 January 2024, the CNC has been conditioning the payment of their financial support to the beneficiaries on the submission of a provisional and a final carbon emission overview for audiovisual and cinematographic works with real-life footage if they are works of fiction or documentaries. Works that are entirely digital are initially not covered by the reporting obligation, as the CNC considers that carbon calculation methods must first be adapted to the specificities of such productions.

Both provisional and final carbon emission overviews must be calculated via one of the three carbon calculators certified by the CNC: Secoya Eco-tournage's $SeCO_2$, Ecoprod's Carbon' Clap or Greenly's Carbon Stage.

[93] CNC's *Plan Action !*

In this context, on the occasion of the 77th edition of the Cannes Film Festival in 2024, the CNC presented a guide on responsible production,[94] by the CNC and the French Ministry of Culture, which saw the involvement of the *Association française de normalisation* (the French standardisation association, AFNOR) to assist professionals in their efforts towards sustainable production methods.

4.1.3. Germany

4.1.3.1. Sustainability in national legislation

The *Bundes-Klimaschutzgesetz vom 12. Dezember 2019* (BGBl. I S. 2513)[95] (Federal Climate Change Act of 12 December 2019, KSG) aims to provide protection against the effects of climate change by ensuring that the national climate target is achieved, in accordance with the European targets. The KSG is based upon the Paris Agreement, under the United Nations Framework Convention on Climate Change,[96] to limit the increase in the global average temperature to "well below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C above pre-industrial levels."

It was amended in 2021 in response to a ruling by the Federal Constitutional Court,[97] which tightened regulation and added to the law the goal of achieving greenhouse gas neutrality by 2045. The Court had found that Germany's legislation on climate protection was partly unconstitutional because it was insufficient to protect future generations and placed an excessive burden on future generations by not aiming to reduce greenhouse gas emissions sufficiently until 2030. The ruling is the first to confirm that the State's duty to actively protect people's fundamental rights from certain risks and dangers also applies to risks related to climate change.

The amendment moved the target year to achieve greenhouse gas neutrality from 2050 to 2045. Interim reduction targets for 2030 were also raised from 55% to 65%, and the amended KSG now defines a reduction path for the period from 2031 to 2040, with annual reduction targets. Uncertainty remains regarding whether the new provisions meet the constitutional requirements pointed out by the Court, as plaintiffs backed by the NGO *Deutsche Umwelthilfe e.V.* submitted another constitutional complaint.[98] The plaintiffs claim that the amended KSG is still insufficient, as the amount of emissions permitted until 2030 exceeds the amounts of CO_2 emissions consistent with limiting global warming to "well below 2°C and, if possible, 1.5°C" as per the Paris Agreement.

As highlighted in Annex 1, the audiovisual sector is not included in the list of sectors for which environmental impact should be monitored, as is the case with the energy,

[94] AFNOR website: AFNOR SPEC 2308.
[95] *Bundes-Klimaschutzgesetz (KSG)Bundes-Klimaschutzgesetz vom 12. Dezember 2019 (BGBl. I S. 2513)* (Federal Climate Change Act of 12 December 2019).
[96] United Nations Framework Convention on Climate Change, June 1992.
[97] *Leitsätze zum Beschluss des Ersten Senats vom 24. März 2021* (in German), Headnotes to the Order of the First Senate of 24 March 2021 (in English).
[98] Constitutional complaint of 24 January 2022 to the Federal Constitutional Court

industry, buildings, transport, agriculture, waste and land use, land-use change and forestry sectors.

Unlike the French Law REEN, the audiovisual sector is left out of the scope of the KSG. However, the KSG will play a role in indirectly reducing the impact of the German audiovisual sector on the environment.

But Germany also has sustainability criteria for film funding enshrined in the *Filmförderungsgesetz vom 23. Dezember 2024 (BGBl. 2024 I Nr. 451))* (Film Promotion Act of 23 December 2024, FFG).[99]

Paragraph 80 on "Ecological sustainability" establishes that "Effective measures to promote ecological sustainability must be taken during the production of the film to be produced using reference funds. Further details are regulated by a directive in accordance with § 11, taking into account § 2 number 8."[100]

4.1.3.2. Sustainability in film fund criteria

The Federal Government Commissioner for Culture and the Media and the *Filmförderungsanstalt*[101] (the German Federal Film Board, FFA), along with the film funding institution of the federal states and the Green Shooting workgroup have developed a set of ecological standards.

Since March 2023, the Ecological Standards for German Cinema, TV and Online/VoD Productions[102] have been legally binding for all federal and regional funding institutions. They include 22 mandatory requirements that all applicants must comply with. In addition to mandatory requirements, the Ecological Standards include target requirements. The latter are not compulsory.

They encompass five main areas: general requirements, energy use, transportation, accommodation and catering, and the employment and use of materials.

In terms of general requirements, productions must appoint a certified Green Consultant, conduct carbon footprint assessments before and after production, and submit a final report to verify compliance. Energy-related measures include mandatory use of certified green energy at production and post-production sites, reducing reliance on diesel generators, and transitioning to renewable energy sources. For transportation, flights are to be avoided for trips under five hours, and at least one-third of vehicles used must be low-emission or electric.

Accommodation and catering requirements emphasize environmentally friendly practices, such as booking eco-certified accommodations and ensuring that at least 50% of food is regional or organic. Additionally, vegetarian meals must be offered at least once a

[99] *Filmförderungsgesetz vom 23. Dezember 2024 (BGBl. 2024 I Nr. 451)* (Film Promotion Act of 23 December 2024, FFG).
[100] Refer to paragraph 10 of *Richtlinie für die Verwendung von Referenzmitteln für programmfüllende Filme zur Herstellung neuer programmfüllender Filme* (Directive for the use of reference funds for feature-length films to produce new feature-length films).
[101] FFA website.
[102] FFA website: Sustainability.

week, and disposable tableware is prohibited. In the category of material use, productions must prioritize the reuse of set materials, costumes, and props, as well as avoid disposable plastics. New wood used in productions must be sustainably sourced, and paper products must contain at least 90% recycled fibers.

A CO_2 balance made with a scientifically recognized carbon calculator is also mandatory.

In exceptional cases, a maximum of five deviations from the 22 mandatory requirements are admissible, if they are justified. This system may be reevaluated after 2024, with the number of possible deviations potentially being reduced to three.

4.1.4. The United Kingdom

4.1.4.1. Sustainability in national legislation

The United Kingdom (UK) has several laws regarding sustainability which, although not specific to the audiovisual sector, can influence its actors.

The Climate-Related Financial Disclosure (CRFD) Regulations 2022[103] require companies established in the UK with over 500 employees or over GBP500 million in annual revenue to disclose annual sustainability and climate-related performance, based on the Task Force for Climate-Related Financial Disclosure[104] (TCFD) disclosure reporting.

The Companies (Director's Report) and Limited Liability Partnership (Energy and Carbon Report) Regulation 2018[105] requires large companies established in the UK to disclose their energy use, CO_2 emissions and greenhouse gas emissions in their yearly financial reporting.

Since it left the EU, the UK has withdrawn from the Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.[106]

[103] Climate-Related Financial Disclosure (CRFD) Regulations 2022, 17 January 2022.
[104] Task Force for Climate-Related Financial Disclosure (TCFR).
[105] The Companies (Director's Report) and Limited Liability Partnership (Energy and Carbon report) Regulation 2018, 1 April 2019.
[106] Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

The UK also lacks an equivalent for Regulation (EU) 2023/1542,[107] imposing sustainability rules on batteries, which entered into force for EU-27 member states after the UK's departure from the bloc.

Despite a legal framework that may seem to impose fewer constraints regarding the protection of the environment and the reduction of CO_2 emissions, initiatives launched by various key actors and institutions from the UK audiovisual sector place it at the forefront of progress in the area of sustainability in film and TV production. Such initiatives include BAFTA's creation of albert and the importance given to sustainability in the British Film Institute's funding schemes and its support of other projects, which will be studied in more detail in the section on sustainability criteria for film funding.

4.1.4.2. Sustainability in film fund criteria

Environmental sustainability[108] has been put at the heart of the British Film Institute's (BFI) 10-year plans Screen Culture 2033 and the BFI National Lottery Strategy 2023-2033.[109] BAFTA albert and Julie's Bicycle,[110] a pioneering non-profit organisation whose objectives include reducing the environmental impact of the cultural and arts sectors, have been awarded funding over the period 2023-2026 via the BFI National Lottery Sustainable Screen Fund. The funding means that BFI Filmmaking fund and BFI NETWORK awardees will be granted access to the resources and activities provided by BAFTA albert free of charge. This will benefit their film development and production activity and the wider film sector with the potential to benefit other areas, such as animation, virtual production and video games.[111]

BFI awardees receiving funding for activities relating to audiences, screen heritage, skills, education, innovation, industry services and international projects are also able to access screen industry-specific resources, via Julie's Bicycle's Sustainable Screen Resource Hub,[112] aiming at building understanding and skills to take meaningful and positive environmental action (including climate literacy webinars and resources, support in developing an understanding of environmental impacts, etc).

As detailed in the guidelines for all productions supported by the BFI Filmmaking Fund,[113] recipients must provide information at application stage and in reporting regarding environmental sustainability. All BFI-backed feature films are required to apply for BAFTA albert sustainable production certification, which includes creating an action plan and submitting carbon emission information at the end of production. Recipients of

[107] Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC.
[108] BFI Policy statements - Sustainability.
[109] BFI - Screen Culture 2033 and the National Lottery Strategy for 2023 to 2033.
[110] Julie's Bicycle – BFI Sustainable Screen.
[111] Through this programme, the BFI has funded the development of five new film-specific, free-to-access, training workshops on sustainability.
[112] Julie's Bicycle Sustainable Screen Resource Hub website.
[113] BFI website funds page - Create films, TV or new formats of storytelling.

development and short film production funding must consider environmental sustainability but certification is not applicable.

The BFI has also been involved in encouraging professionals in the film exhibition sector to implement and promote sustainable practices. In addition to the resources of the Sustainable Screen Resource Hub, the BFI and the BFI Film Audience Network have also put in place a Carbon Literacy Training for Heritage Cinema Venues.[114]

On 6 March 2024, the UK Government's Spring Budget[115] was announced to introduce a 53% expenditure credit (equating to a tax relief of approximately 40%) for UK film production with a budget of up to GBP15 million. While it focuses on the financial sustainability of the film industry rather than environmental sustainability (which is not mentioned in the budget), it does have an indirect impact on the promotion of sustainable practices in filmmaking. The newly introduced tax relief contributes to making the BFI a more attractive co-producer, which in turn requires recipients of funding to comply with sustainability obligations.

4.2. Sustainability in supranational funding programmes

4.2.1. Creative Europe's MEDIA Programme

The MEDIA strand of the Creative Europe programme is designed to support European film and other audiovisual industries. It promotes a holistic European audiovisual policy through the funding of actions of four types:[116]

- Encouraging collaboration and innovation in the creation and production of high-quality works;
- Promoting business innovation, competitiveness, scalability and talents to strengthen Europe's industry vis-à-vis global competitors;
- Strengthening the accessibility and visibility of works for their potential audiences, through distribution channels and audience development initiatives;
- Supporting policy discussion/exchange for studies and reports and promoting awareness-raising activities.

Those clusters of actions are meant to respond to the challenges posed by digital transformation and sustainable development.

In addition to the provision of the Creative Europe Programme for the period 2021-2027, which place sustainability and the protection of the environment as key concerns for

[114] Historic England x BFI FAN Carbon Literacy Online Course.
[115] Spring Budget 2024, see paragraph 4.41.
[116] Creative Europe MEDIA Programme.

applicants to have in mind, the European Commission further defines on the MEDIA Programme's webpage the type of actions that can be funded.

In particular, policy actions and cooperation with member state experts and regulators to discuss policy priorities in the MEDIA Programme in the area of green transformation can be funded.

Projects in which environmental sustainability is not the primary objective can also be funded by the MEDIA Programme, as long as attention is given to sustainability in the context of their making. The exact requirements can be found in calls for proposals on Creative Europe national desks websites.

The call document[117] published on 26 September 2023 (which closed on 14 May 2024) indicated that "applications should present adequate strategies to ensure a more sustainable and more environmentally respectful industry (in particular through the use of greening consultants to reduce the environmental impact of productions and shooting)."

4.2.2. Eurimages

The Council of Europe's Eurimages is committed to considering sustainability in all of its activities, as formalised in September 2020 with the adoption of Resolution CM/Res(2020)8[118] by the Council of Europe's Committee of Ministers.

The Resolution defines the main objective of the fund (Paragraph 1.1.) as cultural, fostering independent, original, diverse filmmaking of quality. It adds that it may take other measures in any area of the audiovisual sector, including environmental protection.

In relation with the Eurimages Board of Management's use of funding, it should use its funding in line with the cultural objectives, principles and values of the Council of Europe and should endeavour, as far as possible, to reduce the environmental impact of its activities (Paragraph 2.3).

Eurimages' Board of Management established a Sustainability Study Group in March 2021 to develop a strategy and action plan to help the Fund adapt to the challenge of sustainability, while continuing its support of quality projects of international reach. This Group is composed of members of the Board of Management and of specialists of the sustainability in the film industry delegated by some member countries.

The Eurimages Environmental Sustainability Strategy (2022-2024)[119] was published in November 2021. It defines three strategic objectives corresponding to different target groups identified by the Sustainability Study Group. To achieve each strategic objective, Eurimages commits to a series of actions.

The three strategic objectives are the following:

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[117] Creative Europe MEDIA Programme – Call for proposals 2024 – TV & Online, 19 February 2024.
[118] Resolution CM/Res(2020)8 amending Resolution Res(88)15 setting up a European Support Fund for the Co-production and Distribution of Creative Cinematographic and Audiovisual Works ("Eurimages").
[119] Eurimages Environmental Sustainability Strategy (2022-2024).

- Support a sustainable film industry;
- Ensure a sustainable functioning of the Fund;
- Encourage cooperation between its member states and the implementation or improvement of sustainability measures.

The Eurimages Environmental Sustainability Strategy is currently in the process of being re-drafted. The Board of Management decided, in November 2022, to implement three measures in favour of sustainable co-productions, starting January 2023.

Projects submitted under the co-production support programme are now assessed based on an additional selection criterion based on the implementation of measures to reduce the project's environmental impact.

Eurimages also intends to be active in the field of sustainable film production training, including through the development of an e-learning platform on sustainable film production which will focus on international co-production and related issues. The platform, called StepUp,[120] developed with Ecoprod, was launched at the 75th Berlin International Film Festival.

A modular training course will help Eurimages respond to different levels of requirements and expectations from professionals, while facilitating the exchange of good practices between them.

[120] StepUp website.

5. Carbon calculators, rating systems and collaborative approaches

5.1. Carbon calculators

The prerequisite to devise an efficient course of action to improve sustainability in the audiovisual sector is to accurately assess the sector's impact on the environment.

Carbon footprint calculators, or carbon calculators, are not exclusive to the film and TV industries. Many have emerged over the years, in order to assess an individual's carbon footprint or that of a company, for instance.

Carbon calculators also exist for websites, like Wholegrain Digital's Website Carbon,[121] a carbon calculator that takes inspiration from the energy efficiency ratings of household products, vehicles and buildings and rates websites on a scale from A+ to F. Grades from A+ to E all correspond to websites that are more energy-efficient than global average, with website that exceed the global average being rated F.

In the case of film, the emergence of specific carbon calculators, tailor-made for the audiovisual sector, is the consequence of the realisation among the various stakeholders of the need to properly assess the situation to provide appropriate solutions.

5.1.1. Carbon calculators at the national level

KlimAktiv[122] from Germany has developed and continuously further developed a film-specific carbon calculator in collaboration with numerous institutions and filmmakers. Their multi-lingual (available in German, English, French and Italian) carbon calculator constitutes a bridging instrument for international green co-productions. As an important tool for professional Green Consultants for Film and TV, the calculator has become the bridging standard calculator in the co-producing, European film industries of Germany, Austria, Italy (South Tyrol) and Switzerland. It is consistently used in those countries as a national standard and further developed together with KlimAktiv. Country-specific factors are regrouped under different rubrics (such as electricity), while other factors and the user-friendly interface (which was initially developed with professional filmmakers and film institutions) have continuously been optimized and further-developed ever since.[123]

[121] Website Carbon
[122] KlimAktiv website.
[123] As of 2024, national versions were the following: Evergreen Prisma, Klimaktiv-Greenshooting CO_2-Calculator (AT), MFG/Klimaktiv-Greenshooting CO_2-Calculator (DE), IDM/Klimaktiv-Greenshooting (IT), SWISS/Klimaktiv-CO_2-Calculator Film & Media (CH).

Numerous broadcasters in Germany use KlimAktiv's carbon calculator exclusively (e.g. ARD, RTL, SWR, NDR) as well as large production companies such as Konstantin Film.

KlimAktiv's carbon calculator further allows broadcasters and funding institutions to easily create an annual balance sheet of projects while complying with strict data protection guidelines.

The calculator has continuously been optimized and expanded, with a focus on expanding automated compatibility. Through these enhancements, data collection in a single tool enables comprehensive evaluation and usability.

The calculator relies on the international standard for calculating product carbon footprints (PCF), and not a KlimAktiv-specific approach. The method is based on the Greenhouse Gas Protocol for calculating PCFs. The scope selected by KlimAktiv has been established as the standard due to its widespread use in practice and, above all, due to its scientific use by the *Öko-Institut* and *Ökopol* in Germany. In addition to CO_2, the calculator takes into account all other greenhouse gases of the Kyoto Protocol.[124] For better comparability, these are converted into CO_2 equivalents (CO_2e) according to their global warming potential in relation to CO_2.

BAFTA albert, in addition to the green production toolkit and training courses they offer, have developed their own carbon calculator.[125] All major UK broadcasters now require new commissions and recommissions of TV broadcast content to obtain albert certification, which requires completing an albert carbon footprint measurement and developing a carbon action plan to reduce emissions and provide evidence of actions taken.[126] Interestingly, for digital video content, for instance content commissioned by the BBC for YouTube or iPlayer only, a carbon footprint is also required, while the certification is not mandatory but encouraged.

In its 2023 annual report,[127] BAFTA albert reported the completion of over 3,000 carbon footprints, with 467 of those coming 38 different countries.

BAFTA albert is however not used everywhere. US content studios, like Netflix and Disney, use their own carbon footprinting system which is not compatible with BAFTA albert, and does not require certification.

Other actors have developed their own carbon calculators, such as Ecoprod's Carbon'Clap, initially created in 2012 and redesigned in 2022 with an update of its calculation methodology. Carbon'Clap was certified by the French CNC in 2023 and is now used by the main French broadcasters and producers[128]. Another carbon calculator, Secoya Eco-tournage's $SeCO_2$[129] was also certified by the CNC in 2023.

Carbon calculators are very useful tools to assess the environmental impact of production, especially with the possibility of comparing it with other productions that use

[124] Greenhouse gases listed in Annex A of the Kyoto Protocol: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3).
[125] BAFTA albert Carbon Calculator
[126] BBC's sustainable production requirements - albert certification
[127] BAFTA albert Annual Review 2023.
[128] Ecoprod's Carbon'Clap
[129] Secoya Eco-tournage's $SeCO_2$

the same carbon calculator. This is also one of their limitations, as each carbon calculator has its own calculation methodology, which may yield different results for the same production. Comparing the impact of productions based on assessments made using different carbon calculators can, therefore, be a challenge.

This margin of error due to differences in calculation methods was at the heart of discussions during a stakeholders' dialogue on Greening the audiovisual sector, launched in June 2021 in the context of the European Commission's Media and Audiovisual Action Plan[130] adopted in December 2020 (specifically its Action 6 "Towards a climate-neutral audiovisual sector). In a joint statement by organisations in the European audiovisual sector,[131] stakeholders underlined the impossibility of comparing and benchmarking results, which reduces the effectiveness of calculators. This realisation led the European Commission to procure the development of a carbon calculator[132] common to the entire European audiovisual sector. The project aims to deliver a standard calculation methodology, to complement existing and emerging calculators via a common application programming interface (API) allowing for data exchange.

5.1.2. Developing a common calculation method

At the end of 2023, following a competitive tender, the European Commission entrusted the development of the MEDIA Carbon Calculator to a consortium including Seriotec (a German firm specialised in cloud-based application, such as Yamdu), KlimAktiv and green film expert Philip Gassmann.

The tool facilitates comparability and potential data exchange across member states by identifying common parameters and carbon emissions factors, which is especially important for European co-productions.

The aim is to provide European countries that do not have a film-specific calculator or have not yet committed to green filming with a carbon calculator for the audiovisual sector at a low level threshold. The project will provide a common calculation method and a user-friendly web-application to calculate the carbon footprint of audiovisual productions, free of charge. The calculator aims to provide concrete information to improve policy making at European level, contributing to ongoing greening efforts in the audiovisual sector.

The application is not to replace existing, high-quality calculators such as KlimAktiv's, which are used for more comprehensive and thus more significant evaluations of film projects. Existing calculators will potentially be complemented by a common API

[130] European Commission's European Media and Audiovisual Action Plan

[131] The initiative is endorsed by BAFTA albert, Ecoprod, Eureca, KU Leuven, Medien- und Filmgesellschaft Baden-Württemberg (MFG), Philip Gassmann, Pro Malaga, Workflowers and the European Audiovisual Observatory (EAO). "Common statement": Towards a unified measurement methodology of CO_2 emissions in the European audiovisual sector

[132] European Commission, "A common carbon emissions calculator for the European audiovisual sector: towards an environmentally conscious future", News & Views, 22 January 2024

and a common data exchange. The tool should be available free of charge to all interested parties by 2027.

The project will run from January 2024 to December 2027 for a total duration of 48 months and has an estimated budget of EUR 650,000 in funding from the MEDIA programme of Creative Europe.

5.2. Rating systems

Rating systems are used to assess the sustainability of a production based on a set of evaluation criteria. They are an efficient tool to promote sustainability for audiovisual productions and to assist production companies in shifting towards working in a more environmentally sustainable manner. Several such rating systems exist at the moment.

5.2.1. EcoMuvi

EcoMuvi is an Italian certification system that evaluates and certifies the sustainability performance of audiovisual productions in pre-production, shooting and post-production phases.

The evaluation process begins with an evaluation of the sustainability risks and opportunities of the projects, based on the script and production plan, taking into consideration social, economic and environmental elements. An EcoMuvi manager is assigned to organise practical steps to implement sustainability measures into the project.

In the pre-production phase, a sustainability policy is defined, and objectives are set to be achieved. The EcoMuvi manager monitors the realisation of the identified strategy during the production phase, which is also when the certification process begins.

At the end of production, all materials used are to be recovered, donated, recycled or reused to ensure maximum circularity and savings.

In the post-production phase, EcoMuvi collects data to evaluate the level of performance achieved., for the certification body to draw up a report and issue a certificate.

5.2.2. Green Film

In 2017, Trentino Film Fund and Commission launched T-Green Film, a tool to promote environmental sustainability in the film industry, which became the first regional fund in Europe to give out prizes and certify production companies working in a more sustainable way. In 2019, it became Green Film and was made available to other institutions such as film funds, film commissions and broadcasters.

The obtaining of the Green Film environmental sustainability Certification label[133] requires the nomination of a Green Film Manager to draft a sustainability plan and a Transport optimisation Plan and ensure that sustainability is taken into account with regard to all items of the criteria contained in the checklist on the final page of the Green Film Rating System.[134] These items relate to energy savings, transport and accommodation, catering, material selection, waste management and communication, with each sub-item being given a point value. Candidates scoring at least 20 points out of a possible 50 are eligible for certification.

Resorting to differentiated waste collection will for instance give 4 points to the applicant, while not putting in place such a collection system will not grant any points. Working with certified suppliers and products will give 2 to 3 points, depending on the certification level. Reusing materials used in other scenes also gives 2 points.

Applicants must then contact a verifying body (national or international companies working in the auditing and certification sector and public bodies involved in environmental and regional management sectors) prior to starting shooting. The verifying body will review the application and assess compliance with the content of the application form.

In the event of a positive evaluation, a Green Film environmental sustainability certification label is issued, and the Green Film logo can be displayed in the film credits and in the communication materials related to the film.

5.2.3. Ecoprod

The Ecoprod collective was created in 2009, aiming to federate and assist audiovisual actors in evaluating and reducing their environmental impact. In 2021, it became an association, with several stakeholders in the French audiovisual sector as its founding members and the support of the CNC.

In addition to the development of its carbon calculator Carbon'Clap, Ecoprod has developed over the years a guide on eco-production (2012), a study on waste management in the audiovisual sector in 2013, the Ecoprod Charter (2014), the Ecoprod Pass (2018). More recently, it developed the Ecoprod label,[135] based on a free, easy-to-use reference framework in open access, available in French and English.

The Ecoprod label has the advantage of proposing a common reference framework for films, series, documentaries, TV programmes and advertisements. It can also be used as a tool for self-assessment of the impact of production on the environment.

The reference framework includes 80 actions that can be implemented to reduce the environmental impact of production, with each action earning points. To be eligible to

[133] Green Film – General information about the Green Film certification process
[134] Green Film Rating System
[135] Ecoprod label

the Ecoprod label, a production must score over 65% and meet the eight mandatory criteria outlined in the reference document.

Applications are assessed by AFNOR Certification,[136] a French company specialising in the audit and certification sectors. The Ecoprob label of the successful application comes in three variants, with several stars reflecting on the score (one star for scores between 65% and 76%, two stars for scores between 76% and 88%, and three stars for scores above 88%).

The Ecoprod label has received the support of around a hundred actors from the film and audiovisual sectors, including broadcasters such as TF1, France Télévisions, ARTE, Canal+ and M6 and production companies like Banijay, Mediawan, ITV Studios, Haut et Court, as well as professional associations, production managers, schools, studios and service providers.

5.2.4. Outside of Europe

The US-based Environmental Media Association (EMA) launched the EMA Green Seal[137] in 2004 as a recognition programme for progress in sustainable production for movies, television shows, filmed commercials and print advertising.

It grants projects a rating based on a scale of 200 points based on a self-assessment on the part of the production company with regard to how well it complied with the programme's criteria. Projects scoring at least 75 points can receive the EMA Green Seal, with those scoring 125 points or more receiving the EMA Gold Seal.

EMA has diversified its Green Seal programme to extend it to businesses and the hospitality sector.

Similar initiatives have emerged outside of the United States and Europe, as is the case with Québec's Rolling Green programme,[138] designed to certify productions that meet several environmental criteria. Launched in 2020, the start-up had accredited 56 productions at the time of writing.[139]

The conclusions on the film industry's impact that led to the initiative's creation are similar to those of its European counterparts, and the suggested improvements also concern the same areas. It rewards three levels of action: commitment, performance, and excellence, based on the productions' ability to demonstrate that eco-responsible measures have been taken.

[136] AFNOR Certification: Ecoprod label form
[137] EMA Green Seal for production
[138] On Tourne Vert (FR) / Rolling Green (EN)
[139] Accredited Productions - On Tourne Vert / Rolling Green

In addition to its certification programme, Rolling Green has produced a series of guides,[140] including on specific areas of production, such as costume management[141] and animation and visual effects studios.[142]

5.3. Collaborative approaches

5.3.1. The EAO's work on sustainability across Europe

In 2023, the European Audiovisual Observatory (EAO) carried out a pilot project to collect the first set of data from carbon calculators and green labels on sustainable production across Europe.

The data collected was considered to be insufficient to allow for a meaningful analysis. The EAO believes that there is a lack of maturity in the European film and audiovisual sector when it comes to collecting homogeneous data on sustainability at national and pan-European levels. It noted that this result did not come as a surprise given the dynamic development of the field with sustainable production practices and new initiatives, many of which do not prioritise data collection.

The EAO has vowed to continue the exercise in 2024. Carbon calculators have been approached again to release a report at the end of the year. The EAO believes it can contribute meaningfully to the development of green filming in Europe by providing pan-European carbon footprint benchmarks.

Research into sustainability and its implementation is complicated because of the constant evolution of legislation and the development of new initiatives which make the collection of exploitable and comparable data at the macroscopic level difficult. The EAO considers that this dynamism also opens opportunities to collect data and provide new research angles.

The EAO considers that the development of a "European calculator" as promoted and supported by the European Commission, could be a significant help in facilitating the collection of comparable carbon footprint data based on a homogeneous methodology across Europe and offering completely new analysis opportunities. It also noted that with the increase in sustainability requirements by national and regional film funds, more data may become available in the upcoming years.

The EAO's work in this context has highlighted the potential benefit of a strong network of cooperating partners to keep up with the evolving landscape of green filming and to ensure knowledge exchange and best practice sharing with other stakeholders.

[140] Rolling Green – Guides
[141] Rolling Green – Guide for ecoresponsible costume management
[142] Rolling Green – The good practices guide for animation and visual effects

5.3.2. A Screen New Deal: a route map to sustainable film production

Examples of fruitful collaboration between actors of the film industry include the joint route map to sustainable film production[143] jointly developed by BAFTA albert, Arup[144] and the British Film Institute (BFI), released in September 2020.

The route map is based on research combining interviews with a diverse range of stakeholders (from studios, production, industry bodies, service providers and buildings and infrastructure designers across the UK and USA) as well as data from sustainability reports from 19 productions (filmed in the UK and USA), a review of 44 papers (including industry reports and academic research) and on-site visits.

The report found that sustainability reporting practices (at the time of research, between November 2019 and July 2020) tended to underreport resource consumption and carbon emissions. A first step to address that issue would be for industry bodies to agree on carbon accounting practices.

In addition to agreeing on ways to properly assess greenhouse gas emissions, the report also found that productions should make changes across the production life cycle. The report insists on the role of the various decision makers involved in production to create an environment that allows crew members to make sustainable choices. To that end, setting up effective communication tools, such as using a cloud-based collaboration platform, was identified by BAFTA albert, Arup and the BFI as very important to rapidly respond to changing circumstances and avoid redundancy in actions and procurement. A centralised collaborative tool also simplifies the work related to data collection and sustainability reporting.

While many improvements can be made at the production level, the report notes that they cannot be entirely successful without support from the studios, as the providers of the physical and digital infrastructure used by productions. The studios need to think of sustainability holistically and take a circular economy approach to building design and providing renewable energy, for instance.

The route map also includes recommendations for productions, regarding materials use, energy and water, studio sites and locations and production planning.

Following up on the route map, the Screen New Deal: Transformation Plan for Wales[145] is a transformation plan for stakeholders in Wales to transform the film and high-end television industry to a zero-carbon, zero-waste sector. Wales was chosen as a pilot location due to ambitious sustainability targets and a significant and rapidly growing creative industry. It is designed both as a call to action for film and high-end TV stakeholders and to act as a blueprint for use in other parts of the UK, with most of the findings and recommendations being broadly applicable across the whole industry. The Plan makes practical recommendations covering five areas: shifting to renewable energy,

[143] A Screen New Deal: a route map to sustainable film production

[144] Arup website

[145] Screen New Deal: Transformation Plan for Wales (full report and digest version).

rethinking transport, adopting a circular approach to resource use and waste, sharing information and best practice and impulsing a culture change in the industry. The recommendations routemap presents actions to be undertaken to meet the goals set by the transformation plan, until 2031 and beyond.

5.3.3. Other collaborative initiatives and institutions

There is a multitude of collaborative initiatives and special institutions focusing on sustainability in the film sector.

Evergreen Prisma's[146] combination of vertical, practice-oriented, knowledge transfer with a holistic approach make it a unique service and an excellent example of collaboration in the sector.

Evergreen Prisma started as an initiative called Evergreen in 2018 and has grown to become the Competence Center for Green Filming Europe with an agile transformatory impact, shown by numerous transformed green filming and funding projects. Anchored as an innovative, bilingual, public institution for art and culture with a strong digital character, it combines an interdisciplinary knowledge transfer with a unique film specific practice focus. Since 2020, its Digital Platform alone counted about 900.000 page views and 230.000 users from 129 countries around the globe. From 2021 to 2024, in the framework of the Evergreen Prisma Academy, eight generations of professional Green Film Consultants – about 90 filmmakers, 63% of whom are women – have been trained, certified and supported. The Evergreen Prisma Academy also offers other specific trainings. The "Intelligent Swarm of Evergreen Prisma" of professional green consultants for Film & TV operates with competence from within, from outside and in institutions. Since 2021, yearly Evergreen Prisma pilot projects have been dedicated to future aspects of green filming in order to foster innovation in the field, as well as numerous Evergreen Prisma Creative Labs for young talents have been mounted. In adequation with its particular practice-oriented approach, Evergreen Prisma interlinks its knowledge-transfer with digital instruments such as the comprehensive Green Practice Kit and the Austrian Carbon Calculator for Film & TV by KlimAktiv.

Furthermore, Evergreen Prisma has offered, since 2020, a multitude of versatile resources on film-specific as well as interdisciplinary sustainability topics, including the European Map of Green Incentives[147] since 2020. By means of mentoring and lecturing and the continuous launch of pilot projects and creative labs, Evergreen Prisma has been fostering the further implementation of sustainable filmmaking in numerous European countries. Evergreen Prisma has received the following awards and nominations: 2020 Makers & Shakers Award, 2021 European Cultural Brand Award, 2022 Liese Prokop Women Prize for Art, Culture and Media, 2023 Finalist Global Production Award and 2024 Double-finalist Global Production Award 2024.

[146] Evergreen Prisma website.
[147] Evergreen Prisma website – European Map of Green Incentives.

It is a member of several (inter)national associations and working groups (EUFCN, AFCI, CineRegio Green/CineRegio, Green Co/Pro Europe (founder), Sustainability Study Group of Eurimages, European Film Academy, AFC&F, VGFCA (co-founder), FC GLORIA).

CineRegio[148] is a continuously expanding network of regional film funds in Europe representing, at the time of writing, 52 regional film funds from 12 EU Member States, Norway, Switzerland and UK.

It was established in May 2005, as a non-profit association. The members exhibit a range of support schemes and services to the film sector which aim to support film culture, encourage social cohesion and build regional infrastructure. Regional film support is vital to foster and safeguard the development of the European audiovisual sector and promotes regional and local cultural identities, cultural diversity, democratic empowerment and sustainability.

The subgroup Green Regio[149] was founded in 2012 and unites a growing number of CineRegio members who are committed to limiting the impact of Film/TV production on the environment. Through the members' continuous work over more than a decade, they have succeeded in raising awareness and sharing knowledge on sustainable film production tools, measures and policies. The need for European training activities and carbon calculations for co-productions have been politically positioned and emphasized by the working group for years. They have achieved great progress in doing so while sharing their knowledge, which was made possible by their early and continuous engagement to achieve next levels of sustainability for film & TV in Europe. There have been several issues of green reports mirroring numerous, sustainable initiatives of Green Regio members.

Green Regio's main objectives have been threefold: knowledge sharing, film policy and co-productions. The members exchange views, perspectives, good practices and information for the benefit of the European film industry, including via the integration of new regional film funds.

Together they raised awareness, represented and promoted regional audiovisual interests across Europe, including members' interests towards European institutions and other organisations which play a role in determining the set of rules and conditions. The Green Regio group members also strengthened the co-development and co-production of audiovisual products, merging talents and resources in different regions for a wider market – including stimulating artistic, technical and creative exchange and know-how throughout Europe.

Since 2019, 41 out of 52 members of Cine Regio have signed a joint statement, the "Green Regio Manifesto for Sustainable Filming".[150] It represents almost 79% of all active members of the association. In 2024, the commitment was explicitly extended to social aspects of sustainability.

[148] CineRegio website.
[149] CineRegio website – Green Regio subgroup.
[150] Evergreen Prisma website – Green Regio and Manifesto Green Regio 2025 (in English).

With this statement, the supporting institutions wish to contribute to the awareness of sustainable filming, enhancing sustainable – social and environmental – measures in film and television production and its funding.

Another relevant working group is Green Co/Pro Europe,[151] a Europe-wide working group for the international green co-production founded by Evergreen Prisma – Competence Center for Green Filming Europe in April 2022.

A growing network of proven experts for green filming and funding is working to systematically design the processes necessary for sustainable, international co-productions. For this purpose, partners from film institutions in countries that have already implemented versatile effective measures for sustainable filmmaking for several years have joined forces. Their experience forms the basis of the think tank, which initially focused on the German-speaking regions, opening up to experts from other countries since 2024.

In 2023, the first steps towards Green Consultancy Europe were conceived and versatile successes were recorded by ÖFI's Green Filming Department, the IDM/South Tirol and the FFA, the German national funding agency together with practice-oriented Evergreen Prisma, especially in the cross-border coordination of sustainable film funding.

The work of Green Co/Pro Europe is already shaping the next steps for effective green filming and funding in Europe. Based on previous experience with green productions, the associated processes of green funding incentives, practice-oriented green filming services and established catalogues of measures including their implementation, application and verification, Green Co/Pro Europe enables the interconnection of effective and approved models for sustainable filmmaking across national borders.

Cooperation with regard to sustainability is also at the core of a working group of EFAD (European Film Agencies). The EFAD Sustainability Working Group[152] was initiated in February 2020 with the objective of exchanging best practices and information on sustainable initiatives launched by national film funds and other partners from the public and private sectors. The Sustainability Working Group is chaired by the Flanders Audiovisual Fund (VAF).[153]

Its objectives are:

- Driving the shift towards reaching the 17 Sustainable Development Goals[154] in the screen industries of each of the EFAD members.
- Exchanging about best practices on sustainability, collecting and updating them regularly, in close cooperation European organisations (CineRegio, EFARN).
- Collaborating on shared toolkits and frameworks to increase sustainable practice and offer useful resources to members and broader industry.

[151] Evergreen Prisma website – Green Co/Pro Europe (in German and English).
[152] EFAD website – The EFAD Sustainability Working Group (in English).
[153] The members of the Sustainability Working Group are ÖFI (AT), VAF (BE), the Cinema and Audiovisual Centre of the Wallonia-Brussels Federation (BE), the Department of contemporary Culture – Deputy Ministry of Culture (CY), the Danish Film Institute (DK), the Finnish Film Foundation (FI), the CNC, (FR), the National Film Institute (NFI, HU), the FFA (DE), the Icelandic Film Center (IS), Screen Ireland (IE), the Netherlands Film Fund (NL), the Slovak Audiovisual Fund (SK) and the British Film Institute (UK).
[154] United Nations Department of Economic and Social Affairs website – The 17 goals.

- Focusing on interventions to increase sustainability throughout the life cycle/value chain of film, from script & development through to exhibition, online distribution and audience engagement, and linking to education and research.
- Preparing common recommendations to the EU institutions and other relevant organisations.

In the UK, the Independent Cinema Office has produced a Green Cinema Toolkit, with the assistance of Julie's Bicycle and funding from the BFI National Lottery.

The Toolkit includes case studies from 23 cinemas (20 belonging to the same group, and three independent cinemas) located in the UK. What all those cinemas have in common is that they operate with sustainability at the heart of their activity (through procurement policy, energy efficiency, staff commitment, etc).

Based on short studies of what each cinema does, the Toolkit provides suggestions for cinemas to green their activity and a summary of guidelines on sustainability to follow and additional useful resources.

Julie's Bicycle,[155] which helped make the Green Cinema Toolkit, is also a key actor in many other collaborative initiatives. Its Creative Green[156] programme supports organisations and networks in the creative industry through consultancy and partnership.

Outside of Europe, BAFTA albert is also collaborating with Sustainable Screens Australia, an organisation dedicated to fostering collective action and a standardised approach to sustainability in Australia's screen industry. This collaborative effort between BAFTA albert and Sustainable Screens Australia allows stakeholders of the industry to access BAFTA albert's carbon calculator, as well as a multitude of tools and resources,[157] such as easy-to-use sustainability checklists for the various actors involved in the different stages of a production.

Sustainable Screens Australia also provides a supplier directory,[158] containing a list of reliable suppliers that take measures to limit their environmental impact.

In the United States of America, the California Film Commission has put in place a Green Resource Guide[159] to help productions minimise their environmental impact and liaise between productions and other stakeholders who provide valuable resources with regard to catering services, recycling, set construction and wardrobe donation.

EMA and BAFTA albert, each with the support of various stakeholders, have launched their Green Riders.[160] Green Riders are contract templates for artists and directors involved in production to request more sustainable measures on set. The template provided by BAFTA albert includes six areas in which the production company commits to prioritise sustainable alternatives. Alternatives are wide-ranging and include, for instance, the

[155] Julie's Bicycle website
[156] Julie's Bicycle Creative programme
[157] Sustainable Screens Australia's Tools & Resources
[158] Sustainable Screens Australia's Supplier directory
[159] California Film Commission's Green Resources Guide
[160] albert's Green Rider

provision of local and sustainably produced catering, the avoidance of disposable make-up wipes and the commitment to undertake an albert certification.

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