

RESPONSE TO THE NEW DRAFT REGULATIONS ON LIGHTING PROPOSED UNDER THE ECODESIGN DIRECTIVE 2009/125/EC AS PART OF THE ECODESIGN WORKING PLAN 2016-2019

This response comes from an organisation that is founded on the aspirations of exceeding the Paris Agreement targets and is solely dedicated to the effective implementation of positive environmental strategies and the swift reduction of greenhouse gas emissions. We believe that the draft regulations on lighting as they currently stand are likely to generate a false conflict between culture and action on climate. Further, that the legislation as it currently stands runs the risk of not just failing to meet its environmental targets, but undermining other, more effective, environmental commitments across performing arts and music.

By taking a comprehensive view that recognises the commitment and range of initiatives already underway we believe that a false and potentially damaging conflict will be avoided, and the ambitious targets set out by the European Union and the UK Climate Change Act will be achieved.

We recommend that the EU and the entertainment industry collaborate to achieve our mutual goals by

- maintaining, for a realistic and mutually negotiated period of time, the existing exemption from the EU, and
- a commitment from the industry to undertake the necessary R&D to commit to a transition which achieves our joint ambition of reducing greenhouse gas emissions by 80-95% by 2050.
- A closer collaboration with the EU on all aspects of the **ECODESIGN DIRECTIVE 2009/125/EC and the ECODESIGN WORKING PLAN 2016-2019**

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I. Julie's Bicycle is a leading international charity that works at the intersection of the creative sector and climate and the environment, supporting the arts and creative industries to understand and take action on their environmental impacts.

With a decade of experience working with arts organisations, from commercial multinationals to independent and publicly funded venues and theatres, Julie's Bicycle has unparalleled knowledge of environmental issues in the performing arts industries and has helped shape action and policy so that it is fit-for-purpose and based on evidence. It is from this - perhaps unique - position, that we are expressing our concerns about the unintended environmental consequences that could follow the scheduled removal of the exemption for entertainment

lighting from the new draft Regulations on lighting proposed under the Ecodesign Directive 2009/125/EC as part of the Ecodesign Working Plan 2016-2019.

- Julie's Bicycle is absolutely committed to the urgent call for action on climate change and amplifying the significance of the 2020 milestone to achieve peak emissions. Our *Vision of a creative community powering action on climate change* is underpinned by our commitment to the Paris Agreement's ambition to limit temperature rise to well below 2 degrees; and the EU Energy Roadmap 2050 of 80-95% reduction in greenhouse gas emissions.
- We welcome the European Parliament proposal for an upward revision of EU targets on energy efficiency and renewable energy generation currently being debated by the Council.
- We understand that the attainment of EU climate and energy targets will depend on the commitment and collaboration from all industries including the entertainment lighting industry.
- We recognise the power and responsibility of legislation to drive investment into R&D and the purchase of new technologies to accelerate the transition to a zero carbon world by 2050.

1. Energy efficiency legislation and minimum product standards have been important drivers of energy reduction and associated GHG emissions across Europe. However, based on currently available information, we are concerned that for the entertainment lighting industry, the intended environmental outcomes – specifically reduction of GHG emissions, including those generated through waste - will outweigh the environmental costs within the timescale proposed.

There is a high risk that the energy efficiency targets will conflict with overall aims to improve resource efficiency, resulting in overall higher GHG emissions from embodied carbon and resource impact than are saved through energy efficiencies.¹

We recommend that a full environmental impact assessment is undertaken prior to the removal of the exemption for entertainment lighting. This will ensure that the proposed legislation is fit-for-purpose and achieves its intended environmental outcomes.

Specifically the impact assessment needs to address the following concerns:

The Ecodesign Working Plan acknowledges that the implementation of the Ecodesign Directive has, to date, focused on energy efficiency and that there is a need to improve resource efficiency through measures that cover the whole lifecycle of products and materials – focusing also on areas such as durability and recyclability.

Tungsten entertainment lighting fixtures have an expected lifespan of 20 – 40 years, with only the lamps/bulbs needing periodic replacement. Additionally, there is a thriving second-hand market for these types of fixtures, with larger and better-resourced organisations handing down

¹ Julie's Bicycle has been working closely with the cultural sector on energy management and efficiency interventions including metering, monitoring and analysis. To date in-depth analysis hasn't been collected systematically because most cultural venues have not had the metering infrastructure necessary to collect the data for monitoring stage power demand in use, nor the expertise to analyse the data. Over the last few years more cultural venues are installing metering infrastructure, but now need support to analyse stage lighting versus other building electricity demand.

older stock to smaller, grassroots, and community organisations unable to afford new fixtures. With no new stocks of bulbs available on the market after September 2020, these fixtures and their associated control equipment would become WEEE very quickly.

- No lifecycle analyses are available for entertainment lighting fixtures and their associated technologies, therefore there is no available data to scope the environmental impact of replacing and scrapping the lighting technologies currently in use before they reach the end of their life, comprising of: old lighting fixtures, dimming controls, cabling, and other control infrastructure.

2. Bearing in mind that stage lighting accounts for a small proportion of energy use in comparison to front of house, heating and cooling, the high cost of replacement of entertainment lighting fixtures may divert investment from proven energy reduction and efficiency measures at a time when cultural budgets are facing significant cuts across Europe; the legislation could unwittingly result in increased energy use as compared to current trajectories of on-going investment into energy efficiency driving reductions across the sector.

Currently available data suggests that stage lighting makes up a small percentage of overall energy use in a performing arts venue, largely because it is only operated for short periods at a time. Additionally, entertainment lighting consumes a fraction of its full connected load, as not all fixtures are likely to be in use at the same time (or for every performance), and lights are frequently dimmed as part of the show.

- A 2014 study undertaken by the Seattle Repertory Theatre in the US in partnership with Fisher Dachs Associates found that electricity used for stage lighting made up only 2% of the Seattle Repertory's annual energy bill. Retrofitting an all-LED rig might cut stage lighting power demand by up to 75%, however the scale of the investment required would be hard to justify in the context of the relatively small energy and financial saving.
- A 2015 energy audit of a club in Portugal undertaken as part of the EU Intelligent Energy Europe co-funded EE MUSIC project (in which JB was a partner) estimated that 17% of the club's energy consumption came from stage lighting and sound equipment (compared to refrigeration: 46% and ventilation and air conditioning: 30%). This audit was not based on direct meter readings, instead relying on an '*energy rating x hours of operation*' calculation derived from the full connected load, meaning consumption is likely significantly over-estimated.
- The Green Theatre Guide, published by the Mayor of London in 2008, estimated that only 9% of the London theatre industry's carbon footprint comes from combined stage electrical use (lighting, sound, automation).

Venues are prioritising areas of known high energy consumption and shorter payback periods, and there has been significant new investment into energy efficiency measures; behaviours and campaigns alongside replacement of lighting in public areas (front of house, bars, foyers, toilets) with LEDs, improvements to building fabric, HVAC, energy monitoring and controls, and energy management programmes to ensure building management systems are properly set up, all of which are yielding real and measurable reductions in energy use and GHG emissions. Investment into more intelligent sub-metering, has helped to better understand and isolate electricity consumption from different areas (including

stage lighting). Where payback periods are understood² and suitable products are available, new LED entertainment lighting technologies have been part of these retrofit programmes.

Forcing investment into upgrading entertainment lighting *in the short term* is likely to yield less energy savings per £/€ invested than allowing venues to plan and prioritise their own investments based on environmental returns. This issue should be urgently assessed and the entertainment lighting industry, alongside the EU, should plan a timely response that accounts for carbon reduction targets.

3. Manufacturers of stage lighting are currently unable to supply LED fixtures that meet the proposed efficiency standards for most entertainment lighting uses and report that they are unlikely to meet the new standards by September 2020.

Overall, a natural shift away from tungsten and less efficient LED fixtures is already happening as fixtures come to the end of their life. In such a specialised market, artificially accelerating iterative cycles may have a detrimental impact on the technology used, instead of improving it, with associated resource costs. Furthermore, guidance from the EU on minimum standards has been released comparatively recently.

Organisations could be forced into buying what is available *before* the end of 2020 and manufacturers rushed into releasing inferior products that are not market ready after this date triggering wasteful additional replacement cycles over the coming decade as LED entertainment lighting technologies develop.

Due to the short investment window, organisations will likely be driven to seek out the cheapest options, with shorter expected lifespans, rather than investing in quality options.

We recommend additional research and consultation with manufacturers and the sector, and a commitment from the industry supported by the EU, to develop a transition pathway to achieve the outcomes of the legislation, with revised timescales, identifying:

- what (if any) entertainment lighting fixtures that meet the new minimum efficiency standards **will** be available by 2020
- which fixture types are unlikely to have available alternatives that meet minimum efficiency standards by then,
- the R&D, and a clear implementation transition pathway including time scales and targets, is undertaken.

² It should be noted that the high cost of entertainment lighting technology can make payback periods too long for new fixtures to be eligible under many external energy efficiency finance and loan schemes.

CONCLUSION

Our recommendations are:

- maintaining, for a realistic and mutually negotiated period of time, the existing exemption from the EU, and
- a commitment from the industry to undertake the necessary R&D to commit to a transition which achieves our joint ambition of reducing greenhouse gas emissions by 80-95% by 2050.
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At a time when cultural engagement with climate change and other environmental sustainability challenges is growing and the performing arts sector is taking a lead in the climate change challenge this legislation as currently proposed could derail much good-will built up in recent years by creating **a false conflict between the cultural and environmental sectors**. This is critical and could negatively impact opportunities for inspirational public engagement on climate change.

We urge you to recognise the commitment of the creative community to achieving – perhaps exceeding – the ambition of the Paris Agreement, and bringing our best efforts to the climate challenge. Alarm about the proposed removal of the exemption for entertainment lighting stems not from resistance to action on climate change – but from a desire to understand, identify, and take the environmentally most preferable course of action.

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Disclaimer

The position statement represents the view of Julie's Bicycle only. It does not reflect the opinions of funders, sponsors, supporters.

EXAMPLES OF ACTION ON ENERGY AND CLIMATE CHANGE FROM ACROSS THE PERFORMING ARTS SECTOR:

Arts Council England: in 2012, the Arts Council of England made annual reporting on environmental impacts and having in place an environmental policy and action plan a condition of funding for over 700 regularly funded organisations, and is working in partnership with Julie's Bicycle to deliver this programme. The data submitted by participating organisations shows a 5% average annual reduction in energy use (based on electricity, gas, and on-site renewables) between 2012/13 and 2016/17.

London Theatre Consortium: (LTC) is made up of fourteen of the leading off-West End producing theatres in London. The LTC has been exploring a collaborative response to climate change in a partnership with Julie's Bicycle, aiming to achieve the Mayor of London's target for a 60% reduction in GHG emissions by 2025. To date, it is estimated the theatres have reduced their carbon footprint by 20%, saving £380,000 in energy bills. The collaboration has also sparked a plethora of creative and public engagement initiatives, as well as investment into capital development. For example, the Lyric Hammersmith redeveloped its existing building and built a new extension at a cost of £20 million, using low and zero carbon technologies and reclaimed and recycled materials, installing LED lighting, water efficient equipment, and a green roof, and achieving a BREEAM 'Excellent' rating.

Manchester Arts Sustainability Team: (MAST) is a network of 30 arts and cultural organisations based in Manchester collaboratively addressing climate change, including the Manchester International Festival, BBC, ITV, and Manchester Art Gallery. Working with Julie's Bicycle, MAST has achieved a 7% year-on-year reduction in CO₂e emissions since 2012/13. Individual achievements include a 43% reduction in electricity use by the Royal Exchange Theatre over the past 10 years. The network has shared learning and best practice while identifying opportunities for cost savings and building relationships with their funders, city, and audiences. As a result, MAST and the wider culture sector are now positioned as key players in achieving Manchester's ambition of becoming a zero-carbon city by 2050. In 2017, MAST was recognised through the URBACT Good Practice Scheme.

The National Theatre: has invested significantly into the environmental sustainability of its building as part of its £83 million NT Future redevelopment programme. The theatre has installed a Combined Heat and Power plant (which generates heat from waste exhaust) as well as a ground source heat pump (GSHP) in the new building. The thermal envelope of the workshop buildings has been improved by installing roof and wall insulation (non-existent in the original design), double glazed rooflights and a green (sedum) roof. The installation of the CHP has already resulted in energy savings, but it will not be possible to accurately quantify savings until all new 'smart' control systems and the Building Management System (BMS) are commissioned and have had a settling in period. Data delivered via electrical sub-metering installed in strategic positions across the site is now being monitored and will be used to target areas showing unusually high demand and investigate how energy is used in these areas and inform procedural and behavioural improvements. LED lighting is being introduced in the foyers and external public areas. A new smart lighting control system using movement sensors and ambient lighting controls to utilise natural daylight is being rolled out in the office areas as part of a re-wiring project.

Radiohead: British rock band Radiohead worked with UK manufacturer I-Pix to develop a bespoke LED fixture suitable to their touring needs in 2008 as part of a wide-ranging sustainability drive.

For further examples, please contact Julie's Bicycle.

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We have also drawn on the research undertaken by the Association of Lighting Designers as part of this response, in particular its briefing document *The Proposed EU 2020 Lighting Regulations and their Potential Impact on Performance Lighting* (2018).