



This fact sheet has been created by [ELIA](#), a globally connected network for higher arts education, as output for the environmental sustainability strand of the [SHIFT - Shared Initiatives for Training](#) project, which focuses on the United Nations' Sustainable Development Goal (SDG) 13: Climate Action. SHIFT, an Erasmus+ partnership project, looks at how cultural networks, organisations, leaders and professionals can embed environmental sustainability into practices and collaborations. Other themes tackled by SHIFT are cultural leadership, gender and power-relations, and inclusion.

**Carbon footprint calculators are essential tools to measure an organisation's carbon footprint. It can, however, be difficult to find reliable calculators. During the course of the SHIFT project, ELIA conducted research into which carbon calculators are available for networks to use in order to reduce CO<sub>2</sub> emissions and efficiently track their efforts.**

Generally, cultural networks have two main sources of carbon emissions: travel and events. Two carbon calculators were identified as best options to measure emissions from these two specific sources.

For carbon emissions produced by events, at the time of publication, SHIFT recommends the use of Julie's Bicycle Creative Green Tools. This calculator allows for the measurement of carbon emissions from offices and cultural venues, as well as tours, productions and indoor/outdoor events. It uses United Kingdom conversion factors, which are published annually by the government. Conveniently, *Creative Green Tools* is available for free.




For carbon emissions resulting from travel, we recommend the use of *Claim Expenses* by Creative Carbon Scotland. While it requires a small

investment of £99 a year for five claimants, or a £180 for fifteen claimants, it has numerous advantages. It allows for the archiving of trips, which can be sorted under specific projects and budgets. This tool was specifically created for the cultural sector and is widely used by Scottish cultural organisations. It can account for CO<sub>2</sub> emissions of all forms of transportation and trips worldwide.

There are numerous free alternatives which can be considered, although – to the best of our knowledge – these do not allow for archiving, a feature that is very useful for tracking the progress/development of travel habits. It is also worth keeping in mind that carbon calculators use different emission conversion factors. In the case of *Claim Expenses* these are United Kingdom conversion factors, which means that in some instances (especially train travel) calculations might be less accurate for travel elsewhere in the world. A comparison of different calculators can be found in the table below.

**MEASURING CO<sub>2</sub> EMISSIONS IS AN ESSENTIAL STEP FOR ORGANISATIONS BECOMING MORE ENVIRONMENTALLY SUSTAINABLE.**

# CARBON CALCULATORS COMPARISON

 <b>CALCULATOR</b>	 <b>ADVANTAGE</b>	 <b>DISADVANTAGE</b>
<p><b><u>Creative Green Tools</u></b> <i>Project and building emissions calculator</i></p>	<ul style="list-style-type: none"> <li>• Trusted source (Julie's Bicycle)</li> <li>• Very complete overview of emissions for creative projects (events) and buildings</li> <li>• Intuitive interface</li> </ul>	<ul style="list-style-type: none"> <li>• Does not account for stand-alone travel emissions</li> </ul>
<p><b><u>Claim Expenses</u></b> <i>Travel emissions calculator</i></p>	<ul style="list-style-type: none"> <li>• Trusted source (Creative Carbon Scotland); used widely by arts organisations in Scotland</li> <li>• Detailed summary of travel emissions</li> <li>• Allows for budgeting and archiving</li> <li>• Specifically made for the cultural sector</li> <li>• Export data to Excel</li> </ul>	<ul style="list-style-type: none"> <li>• Costs £99 per year for five monthly claimants</li> <li>• Costs £180 per year for fifteen monthly claimants</li> <li>• UK conversion factors</li> </ul>
<p><b><u>EcoPassenger</u></b> <i>Travel emissions calculator</i></p>	<ul style="list-style-type: none"> <li>• Trusted source (Institute for Energy and Environmental Research - ifeu)</li> <li>• Carbon footprint for different types of travel (car, plane, train)</li> <li>• Settings can be changed by users</li> <li>• Considers national conversion factors</li> <li>• Accounts for other emission types (energy use etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Restricted to European routes</li> <li>• No archiving</li> </ul>
<p><b><u>Trees For All</u></b> <i>Travel emissions calculator, CO2 offsetting scheme</i></p>	<ul style="list-style-type: none"> <li>• Trusted source (certified non-profit)</li> <li>• Carbon footprint for different types of travel (car, train, ferry, airplane)</li> <li>• Accounts for business travel</li> </ul>	<ul style="list-style-type: none"> <li>• Set conversion factors</li> <li>• No archiving</li> </ul>
<p><b><u>Atmosfair</u></b> <i>Travel emissions calculator, CO2 offsetting scheme</i></p>	<ul style="list-style-type: none"> <li>• Trusted source (supported by the German Federal Agency for Environment, Nature Conservation and Nuclear Safety))</li> <li>• Uses realistic carbon prices</li> <li>• Settings can be changed by users</li> <li>• Comparison between airlines</li> </ul>	<ul style="list-style-type: none"> <li>• Restricted to airplane travel</li> <li>• No archiving</li> </ul>

## PRACTICAL EXAMPLE OF DIVERSITY IN CARBON CALCULATORS

### Note:

There is no perfect carbon footprint calculator.

All available tools make assumptions based on the factors they use for their models, and numbers are generally inconsistent. It is especially difficult in the case of travel emissions. Take, for example, a flight from Berlin to Amsterdam using the above-mentioned travel carbon footprint calculators:



Kg of CO<sub>2</sub> emitted on a single Berlin-Amsterdam Trip by plane

As can be seen, these numbers vary greatly. If a statistical analysis is performed, the standard deviation culminates at 25, which is quite large, even when considering the sample size.

<b>Average</b>	<b>137,666667</b>
<b>Standard Deviation</b>	<b>25,1925915</b>
<b>Sample Size</b>	<b>6</b>
<b>Confidence Coff</b>	<b>1,96</b>
<b>Margin of Error</b>	<b>20,1582715</b>

It is therefore recommended to use these carbon calculators, not as **an absolute measure of carbon emissions**, but as an indicator of improvement and change in carbon emissions within an organisation. For this reason we advise to use one carbon calculator tool consistently.

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