Sustainability Report of

THE INTERNATIONAL

BNA2023

FESTIVAL OF NEUROSCIENCE

23-26 April I Brighton

Contents

Sustainability at the BNA

The aim of this report is to assess the sustainability of our BNA*2023* International Festival of Neuroscience, delving into the various elements contributing to its carbon footprint including travel, catering, production materials and transport, energy, and waste. This report also looks toward the future, including suggestions on how our sustainable practices could be improved and measured for BNA*2025* in Liverpool, and festivals in the further future.

We want to be fully transparent with our sustainable journey, communicating our successes and improvements in this area, with the objective of confirming our commitment to working towards net zero by mapping out the steps needed to get there.

At the BNA, we are committed to being as environmentally responsible as possible in all our activities. Our Green Neuroscience Working Group (GNWG) meet every 2-3 months and is set up to help guide these activities, advise on targets for the BNA on carbon reduction, and raise the profile of green neuroscience within the wider neuroscience community.

We consider our sustainable practices carefully and aim to ensure all our activities are accounted for in terms of their environmental impact.

> "To help society create a survivable future, we neuroscientists can and must play our part"
> Rae et al. (2022)

Climate Emergency

The BNA has joined other organisations and institutions across the UK and globally in declaring a climate emergency to highlight the urgency of the need for action:

- We recognise the danger of the climate crisis on human health
- We are committed as a society to promote environmental sustainability to our members and reduce the carbon impact of our activities
- Through our Green Neuroscience Working Group, we commit to developing ways to accelerate the BNA's environmental sustainability and to develop ways to incentivise the neuroscience community to becoming more sustainable.

Sustainability at the BNA

Sustainability and being as environmentally friendly as possible with our actions are an important part we take into consideration when organising BNA events. It is central to our belief that any sustainable action taken, big or small, is a valuable contribution toward our carbon reduction.

As a result, here is a compiled list of the sustainable actions we already take as event organisers:

- Asking applicants for our travel bursaries to demonstrate how they have made efforts to reduce the carbon footprint of their travel, encouraging a 'train over plane' approach: Train over Plane BNA Green Travel Grant - 5 awards of up to £100 are made to successful applicants to support the difference in cost between plane and other travel options.
- Enabling up to 50% of speakers in each session of our festival of neuroscience to present online rather than deliver their talk in person
- Ensuring catering at BNA events is vegetarian and considers other low carbon impact food options as much as possible
- Opportunity to promote green neuroscience and engage with delegates at our Festival, and more recently at our Members' Meeting 2024.
- Our Credibility in Neuroscience campaign also aims to ultimately reduce waste in neuroscience research through boosting reproducibility of the research produced.
- Ensuring good transport links to venues for our in-person events, e.g. Festive Symposium 2023 (Francis Crick Institute).
- Encouraging all speakers and delegates to travel via public transport
- All materials such as name badges, programmes and banners are re-used, recyclable and/or biodegradable
- Asking delegates to bring their own water bottles, as we provide water bottle filling stations on site.

Sustainability at BNA*2023*

The BNA*2023* Festival of Neuroscience, which took place on the 23-26 April 2023 in Brighton, was the first in-person Festival in four years. With a total of 1102 people at the festival, it was essential that sustainable practices were put in place to minimise the environmental impact of a gathering this large.

What was done at the Festival:

- Green Neuroscience talks were incorporated in the Festival programme , e.g. session entitled 'How can we make neuroscience more environmentally sustainable?'.
- Session organisers had the option to have half of their speakers give their talk online.
- Speakers attending in person were encouraged to attend the whole festival, maximising 'what we get for our carbon'.
- Staff, speakers, and attendees were encouraged to take lower carbon travel options.
- Delegates were offered funding to help support greener travel options.
- All sessions were recorded, meaning people could still benefit from the sessions without having to travel down to Brighton.
- All food was vegetarian by default.
- Biodegradable and/or recyclable materials were used, e.g. bamboo banner stands.
- We re-used materials where possible, e.g. name badges and lanyards.
- Delegates had the opportunity to refill their water bottles on site.
- The book of abstracts was only available in digital format, reducing the amount of print that had to be done.

Sustainability at BNA*2023*

The Venue

The BNA*2023* Festival of Neuroscience took place at the Brighton Centre, right by the seafront. Like the BNA, the Brighton Centre is committed to their sustainable journey, and have various initiatives in place to help them reach their goal of being a sustainable venue, such as:

- Zero to Landfill waste
- LED lighting throughout the venue
- Water-saving systems in place in the toilets
- Recycling bins throughout the venue
- Using modern technology to reduce gas usage on their hot water and heating
- Water fountains throughout the venue
- Carpet floor tiles
- Their purchased energy is UK Renewable for Business which is sourced from a range of renewable technologies across the UK only.

> 'The Brighton Centre is committed to being a sustainable venue and improving the impact that we, and the events that we host, have on our local environment and the planet. We are working hard behind the scenes to look into ways to improve our carbon footprint.'
> The Brighton Centre

The Carbon Footprint

The carbon footprint of BNA*2023*

Generally, these are the main elements that contribute to an event's carbon footprint:

Travel | Hotel stay | Production (materials and transport) | Energy | Waste | Catering

Isla, a non-profit organisation focusing on a sustainable future for events, helps event organisers calculate the carbon emissions of their event. They briefly summarise the different factors that they measure when calculating the carbon footprint of events in the figure below. This sustainability report is heavily based on the components of this diagram, as it is generally accepted to be an accurate representation of an event's constituents.

These elements are central to organising any in-person event, so cannot be removed entirely, however a reevaluation on how they are carried out and implemented is crucial in our journey toward organising more sustainable events.

It is our responsibility as a event organisers to identify and be aware of the sources of our carbon emissions. In terms of BNA*2023*, our carbon emitters include the following:

- Travel to the venue and hotel stay of delegates, speakers and staff.
- Production and transport of materials such as:
  - Branded signage, badges/lanyards, flyers, volunteer t-shirts...
- The venue's energy consumption between 23-26 April.
- The venue's waste production between 23-26 April.
- The catering provided at the venue, including food and drink and the cutlery, serveware and packaging used.

Using the information we had available to us post-event, we aimed to calculate the carbon emissions of each of these areas to come to a total carbon footprint of BNA*2023*.

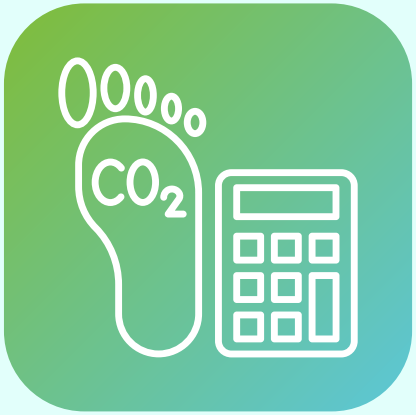
Isla. Temperature Check 2022-2023, 'What Trace Measures'

The carbon footprint of BNA*2023*

All these carbon emitters can be split into scopes:

- Scope 1 - 'direct emissions', e.g. Staff travel
  - 'Considers the direct emissions from activities that are owned or controlled by the organisation'
- Scope 2 - 'energy indirect', e.g. electricity generation of the venue
  - 'Emissions that are a consequence of your event and the energy used'
- Scope 3 - 'other indirect', e.g. delegate travel, hotel stay, waste disposal, catering
  - 'Anything that is not directly controlled by your company running the event, yet still creates GHG emissions' *

As an organisation, it is important that we are aware of our scope emissions, as it gives us an idea of which areas to focus on to make the biggest impact. We hope that measuring and reporting these emissions will better guide our decisions on sustainability in the future.



How we calculated carbon footprint

With the help of Isla, and their Trace demo, we were able to use their equations of calculating carbon footprints:

Activity metric x carbon factor = carbon footprint

Utilising the UK Government conversion (carbon) factors for company reporting of greenhouse gas emissions (GHG Conversion Factors 2023), we were able to calculate the carbon emissions for the areas that we had suitable data for. In practice, we took the value of the activity, be it total miles travelled by our delegates, or kWh of energy consumed by the venue, and multiplied it by the conversion factor (carbon factor) outlined in the GHG Conversion Factors document. This then gave us the individual carbon footprint values for the specific carbon emitters that we measured.

After contacting our delegates, our events team and the team at the Brighton Centre we were able to gather enough information to be able to calculate and produce an estimated a carbon footprint for our travel, hotel stay, energy usage and waste disposal. In terms of production (materials and transport) and catering, we were not able to collect specific values in order to calculate an overall carbon footprint, however in the future, with the knowledge we have now of calculating carbon footprints, this can be easily done.

*Definitions cited from Zentive Agency (https://www.zentiveagency.com/post/how-to-measure-the-carbon-emissions-of-an-event-and-what-to-do-to-combat-these)

The carbon footprint of BNA*2023*

Travel and Hotel Stay

Travel of delegates, speakers (Scope 3) and staff (Scope 1) usually contributes the most to the carbon footprint of an event.

Speakers

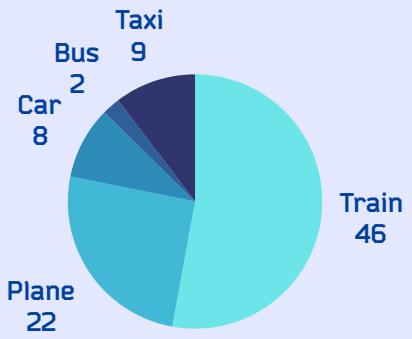
Of 226 speakers, we were able to gather the data of 46 using information from their travel expense receipts.

The total travel carbon footprint came to 16.01 tonnes of CO2e.

Generalising this number to the entire speaker pool (226 speakers), the figure comes to 84.15 tonnes of CO2e.

43 of these 46 speakers (93%) stayed in a hotel. Their total hotel stay carbon footprint came to 0.72 tonnes of CO2e. Generalising this number to the entire speaker population, 93% stayed in a hotel, their total hotel stay carbon footprint comes to 3.51 tonnes of CO2e.

Totaling these figures together, our speaker travel and hotel stay carbon footprint comes to an estimate of 87.66 tonnes of CO2e.



Total number of journeys taken by each mode of transport.

Delegates

From the survey sent out to delegates, we were able to calculate the carbon footprint of the travel of 100 delegates, which came to 16.4 tonnes of CO2e.

Generalising this figure to the entire delegate population (876 delegates) to form an estimated total travel carbon footprint for our delegates, a complete figure of 143.63 tonnes of CO2e was found.

Of the 100 delegates we had data for, 86 stayed in a hotel. For their hotel stay, a figure of 2.79 tonnes of CO2e was found. If we generalise the finding that 86 out of 100 delegates stayed in a hotel (86%), we can say that out of the total 876 delegates, 753 delegates stayed in a hotel, thus an estimated hotel stay carbon footprint comes to 24.4 tonnes of CO2e.

Totaling these figures together, our delegate travel and hotel stay carbon footprint comes to an estimate of 168.03 tonnes of CO2e.

Adding our speaker and delegate travel and hotel stay carbon footprint figures together, we come to a total carbon footprint of:

255.7 tonnes of CO2e

The carbon footprint of BNA*2023*

Energy

The Brighton Centre consumed about 7000 kWh of electricity during the festival. This is made up of roughly 2000 kWh consumed each day for the first three days of the festival (8am-8pm), and about 1000 kWh on the last day (8am-1pm). **This comes to a total carbon footprint of 1.45 tonnes CO2e.**

No temporary power supplies were used, so only the mains power supply was needed to be calculated.

Gas

Although unable to collect a specific value of gas usage, the Brighton Centre was able to provide us with some useful information about their newer style boilers: 'We have installed multiple newer style smaller boilers that use less gas and will ramp up and down on usage. They bring in and out boilers on need rather than burning all the time. Previously like old buildings we had massive boilers that fired constantly.'

Catering

We were unable to measure the carbon footprint of our catering, as we do not have the specific details of the production of the meals and all their ingredients. This is something we will need to take note of in future festivals, to aid in our calculations of a total carbon footprint. However, we do have this information from the venue:

- No plastic straws onsite and no drinks sold in single use plastic bottles
- Use of wooden cutlery (recyclable), palm leaf and cardboard food containers
- Cooking oil is collected and recycled
- Food waste is recycled, which then produces a high-quality compost material and a bio gas which is used as a heat source
- BeSeasoned have a bronze Food for Life certification from the Soil Association and are working towards renewing this for the next year.
- Water supplier is Life Water UK. Through the sales of water at the venue, they have built two water wells in third world country villages. See details here: https://www.life-water.co.uk/
- Working with local homeless charities including Fareshare, which they donate excess produce to avoid waste.

Tea, coffee and water were given to delegates, and all the food was vegetarian by default, which although we do not have an exact figure for, reduces the carbon footprint of the festival.

The carbon footprint of BNA*2023*

Production

Transport

One van was used to transport Outsourced Events' and the BNA's materials to Brighton from a warehouse in Brentford. This van transported materials such as a projector, phone scanners, posters, t-shirts, etc. Considering it was a return journey covering 238km in total, its carbon footprint comes to 0.05 tonnes of CO2e.

We don't have any information regarding the travel of other external deliveries, as well as how sponsors had their items delivered to the venue, such as their stand materials, therefore we cannot come to a full carbon footprint on our material transport.

Materials

In order to calculate the carbon footprint of materials used at an event, we need to know the material type, its weight and whether it was made from virgin stock (Primary Material Production), it was made from recycled materials or if it was reused. While we have information regarding what the materials were, e.g. stands and signage, and their quantity, we do not have the exact material weight or information on its production. Therefore, an exact carbon footprint cannot be calculated.

A number of materials that were supplied to BNA*2023* were reused, such as name badges, fliers, banners, and lanyards. These items are still being used at our events and have not been disposed of. In terms of disposing other items, everything recyclable was recycled, for example, everything printed on paper and cardboard was recycled, which is discussed on the next page.

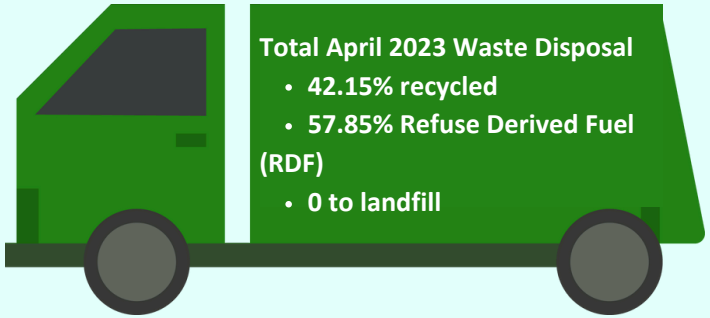
We purposefully worked towards ensuring we used biodegradable and/or recyclable materials. For example, the BNA's stand is made 100% from bamboo. This stand is now reused at all our events.

The carbon footprint of BNA*2023*

Waste Disposal

The Brighton Centre monitors their waste disposal carefully, and produces a waste report monthly, however they did not have the details of our Festival's waste specifically. The Brighton Centre supplied us with their waste figures from April 2023, from which we were able to gather the following information.

The Brighton Centre has confirmed that the waste collection of 0.520 tonnes was the total waste from our event.



Contributing to our total waste value , here are a few of the different categories it is most likely we produced and their carbon footprints:

- 0.098 tonnes of food waste (100% RDF, Combustion) - 2.09 kgCO2e
- 0.011 tonnes of general waste
  - 48% RDF (Combustion) - 0.11 kgCO2e
  - 52% recycled - 0.12 kgCO2e
- 0.09 tonnes of plastic waste
  - 70% RDF (Combustion) - 1.34 kgCO2e
  - 30% recycled - 0.57 kgCO2e
- 0.14 tonnes of paper/card waste (100% recycled) - 2.98 kgCO2e

From this information, we can estimate that the carbon footprint of our waste disposal was about 7.21 kgCO2e -> 0.00721 tonnes of CO2e.

As it is out first time calculating the carbon footprint of our Festival of Neuroscience, it was expected that we would not have all the correct data to come to a final value. However, we can come to an estimate of a partial carbon footprint.

The carbon footprint, including delegate travel and hotel stay, material transport, energy consumption and waste disposal comes to a total of:

257.21 tonnes of CO2e

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BNA British Neuroscience Association

The Future of Sustainability at the BNA

The Future of Sustainability at the BNA

This sustainability report gives us an objective understanding of the environmental impact of our event, allowing us to better combat the sustainability of our future festivals. We aim to minimise our impact, and this report has put us in a good place to do just this.

Venue

BNA*2025* is taking place at ACC Liverpool. As a venue, they are constantly working towards a greener future, with a clear plan set in place of how they are going to achieve this. Their sustainable initiatives set in place include:

- Carbon neutral campus
- Zero waste to landfill policy
- Carbon zero by 2030 goal
- Carbon labelling on menus
- 100% renewable energy
- Biodegradable cups

Their in-house team can provide us with post-event reports to help us understand our biggest consumption areas.

Carbon Footprint

We learnt a lot from our first ever festival carbon footprint calculation. We learnt what needs to be measured and how to measure it, which we are now pairing with an ongoing exploration of how to reduce our carbon emissions in the future.

Due to a lack of information, we were unable to calculate a full carbon footprint, and thus, the total carbon footprint figure is mainly delegate travel. However to improve this, we are creating a handbook outlining the information we will need to collect prior to and during BNA*2025* in order to calculate a figure for its full carbon footprint.

Practical Changes

For BNA*2025*, we are currently looking into the practical changes we can make to our programme and event operation in order to reduce our environmental impact. Some examples include:

- Better and more effective use of digital signage
- Asking our exhibitors for a sustainability plan for their stands, i.e. the life cycle of the materials used in their exhibition
- Understanding the carbon impact of the food and refreshments we serve

Communicating the 'why'

In order to best react to the outcome of this report and reduce the environmental impact of our future festivals, we acknowledge the fact that we must first inform ourselves on climate change itself, and the importance of reducing our emissions. 'When people understand the underlying purpose or belief behind a task or goal it motivates them to act.'

Isla use the terms of becoming 'climate literate' and 'carbon instinctive', which are what we want to explore for the members of our events team.

Visit the Sustainability page on our BNA*2025* website to find out more about the steps we are taking to reduce our emissions.

Acknowledgements

We want to thank those who helped make this report possible and kickstart our carbon footprint reduction journey.

Thank you to the Brighton Centre for their intrinsic sustainable practices which greatly aided the sustainability of BNA*2023.*

We also want to thank Louise Wyborn specifically for her help in providing the figures and information needed to calculate BNA*2023*'s emissions

Thank you to Isla, the pioneers of event sustainability, and their Temperature Check Report 2022-2023 which heavily inspired the carbon footprint calculation of this report.

We also want to thank Rebecca Lardeur for her help in guiding our approach to calculating carbon footprint.

Thank you to Outsourced Events, for their dedication and aid in delivering BNA*2023.*

We also want to thank Alice Paines for her help in providing the information on production (materials and transport) that we required.

The carbon conversion factors used to calculate our carbon footprint was based on the UK Government's GHG conversion factors for greenhouse gas reporting 2023, https://assets.publishing.service.gov.uk/media/649c5340bb13dc0012b2e2b6/ghg-conversion-factors-2023-condensed-set-update.xlsx.

Links:

Sustainability at the Brighton Centre Environmental Sustainability and BNA2023

Reference:

Rae, C. L., Farley, M., Jeffery, K. J., & Urai, A. E. (2022). Climate crisis and ecological emergency: Why they concern (neuro)scientists, and what we can do. Brain and Neuroscience Advances, 6, 239821282210754. https://doi.org/10.1177/23982128221075430

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