December 22, 2023

Ms. Liane M. Randolph
Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Ms. Randolph:

On behalf of the Exhibitions & Conferences Alliance (ECA), a coalition of leading professional, trade, and labor organizations from across the business events industry, I write to express ECA's concerns with the latest version of the California Air Resources Board's (CARB) proposed Zero-Emission Forklift Regulation (Proposed Regulation), as published on November 10, 2023.

For context, the global business events industry is committed to achieving net zero carbon emissions by 2050, as affirmed by the Net Zero Carbon Pledge for the Events Industry (Pledge) launched by the Net Zero Carbon Events (NZCE) initiative at the 2021 United Nations Climate Change Conference (COP 26). To date, more than 600 organizations have signed the Pledge, including many business event organizers and suppliers with significant operations in California.

In 2022, NZCE released *A Net Zero Roadmap for the Events Industry* (Roadmap), a copy of which is attached with these comments. Notably, Action Area 1 ("Power events efficiently with clean, renewable energy") on page 30 of the Roadmap highlights the industry's planned transition to providing low carbon onsite vehicles (including forklifts) at business events worldwide, including those taking place in California.

Achievement of the NZCE Roadmap is further outlined by a series of Guidance Documents released earlier this month, including the Logistics Guidance Document that details best practice areas to reduce the carbon emissions associations with logistics at business events, including those related to forklift usage.

In summary, **industry stakeholders are leading the decarbonization of the business events industry** in California, across the United States of America, and around the world.

Within this context, CARB's Proposed Regulation relies on flawed data and unrealistic assumptions to justify the accelerated phase out of propane as a clean and reliable energy option for spark-ignite engine forklifts operated by various stakeholders in our industry. As such, the Proposed Regulation stands at cross purposes with the industry's decarbonization efforts and will likely result in a *higher* carbon footprint from forklift use by the business events industry in California going forward.

As the attached case study sets forth, the business events industry relies on propane-powered forklifts as a reliable and clean energy option for materials handling and other critical tasks at conferences, trade shows, expositions, and other events throughout the Golden State. Why?

- Electric forklifts presently lack the lift capacity required to transport materials for an entire eight-hour shift, let alone the average 14-hour-per-day runtime for forklifts at business events venues.

- Business events venues lack the dedicated charging space and capacity for electric forklift fleets, which would require venues statewide to take on significant wirework, installation, infrastructure changes, fire suppression systems, and ventilation to accommodate an all-electric forklift fleet.

- Propane forklifts produce 76% fewer sulfur oxide emissions and have a lower carbon footprint than electric forklifts when lifecycle emissions are considered.

CARB's Proposed Regulation fails to take these considerations into account while also underestimating the overall operational and financial impact on our industry's forklift operators as well as other stakeholders throughout California.

- While CARB estimates that its Proposed Regulation would impact 95,000 forklifts, that is less than a third of the values produced by 2017 research for CARB by the Social Science Research Center at California State University, Fullerton. In reality, the Proposed Regulation will impact 308,000 forklifts statewide, or more than three out of every four forklifts in operation today.

- As a result, California forklift operations will need to spend at least $14.1 billion on replacement forklifts under the Proposed Regulation.

- Considering that most electric forklifts have an eight-hour use period, eight-hour charge period, and an eight-hour battery cool down period, a one-to-one replacement of propane-powered forklifts for electric forklifts is infeasible. For the business events industry, which can run up to three shifts per day in advance of an event's opening, this would mean a three-to-one replacement ratio, which is not accounted for in the aforementioned $14.1 billion replacement cost figure.

- CARB's Proposed Regulation does not take into account the logistical and financial considerations associated with installing charging stations for all-electric forklift fleets, building power supply upgrades, or infrastructure upgrades for the generation, transmission, and delivery of electricity.

Given these challenges, ECA recommends several important changes to the Proposed Regulation that will ensure CARB's environmental aims can be met in the long term while continuing to allow the business events industry to continue to effectively decarbonize our activities in California and globally.

- Consistent with the Proposed Regulation's phase out of model year (MY) 2011 forklifts beginning in 2028, **extend the phase out of all Class IV and Class V MY forklifts purchased prior to January 1, 2026 for 17 years from the calendar year in which the forklift was manufactured**. For the business events industry, where 99% of all organizations are small businesses, this will provide those smaller operators with additional time necessary to fund the transition of their fleet while manufacturers work to supply additional electric forklifts to the California marketplace.

- **Extend the Section 3007(b)(3) infrastructure delay extensions to include *any* delays with physical infrastructure that must be constructed**. As other stakeholders have previously set forth, charging systems, stored lithium or lead-acid batteries, and electric forklifts themselves cannot be stored outside. These materials require dedicated physical infrastructure, the building

of which can often be delayed by material shortages, inspections, plan and permit approvals, fire marshal restrictions, and weather delays. This should be accounted for in Section 3007(b)(3).

Similarly, **the Extension Term should not be capped at two years**. This is particularly important when bringing in additional power lines and capacity to account for the larger electric forklift fleet.

- Recognizing the impact CARB's Proposed Regulation will have on the still-nascent electric forklift market in the state, **eliminate the proposed sunset date in Section 3007(4)**. Fleet operators in California, especially small businesses, should not be forced to cease operations if a feasible zero-emission forklift solution is not available in the marketplace by an arbitrary date.

- **The phase-out cap from previous drafts of the Proposed Regulations must be reinstated** to ensure that larger fleet operators within the business events industry are not required to disrupt the operations of their customers due to mass phase-outs of their forklift fleet. Not reintroducing the cap would not only create economic infeasibility for those operators, but it would also lead to supply disruptions in the marketplace that would almost certainly trickle down to smaller fleet operators seeking to replace soon-to-be phased out forklifts.

- Finally, **Section 3006(c) must be amended** to reflect that forklift operators in the business events industry, especially small businesses, cannot be expected to estimate their future electrical needs for an all-electric forklift fleet that will be phased in over a period of a decade or longer. ECA supports the proposal of other stakeholders that requires fleet operators to immediately engage with their electrical utility providers to identify solutions when additional capacity is needed.

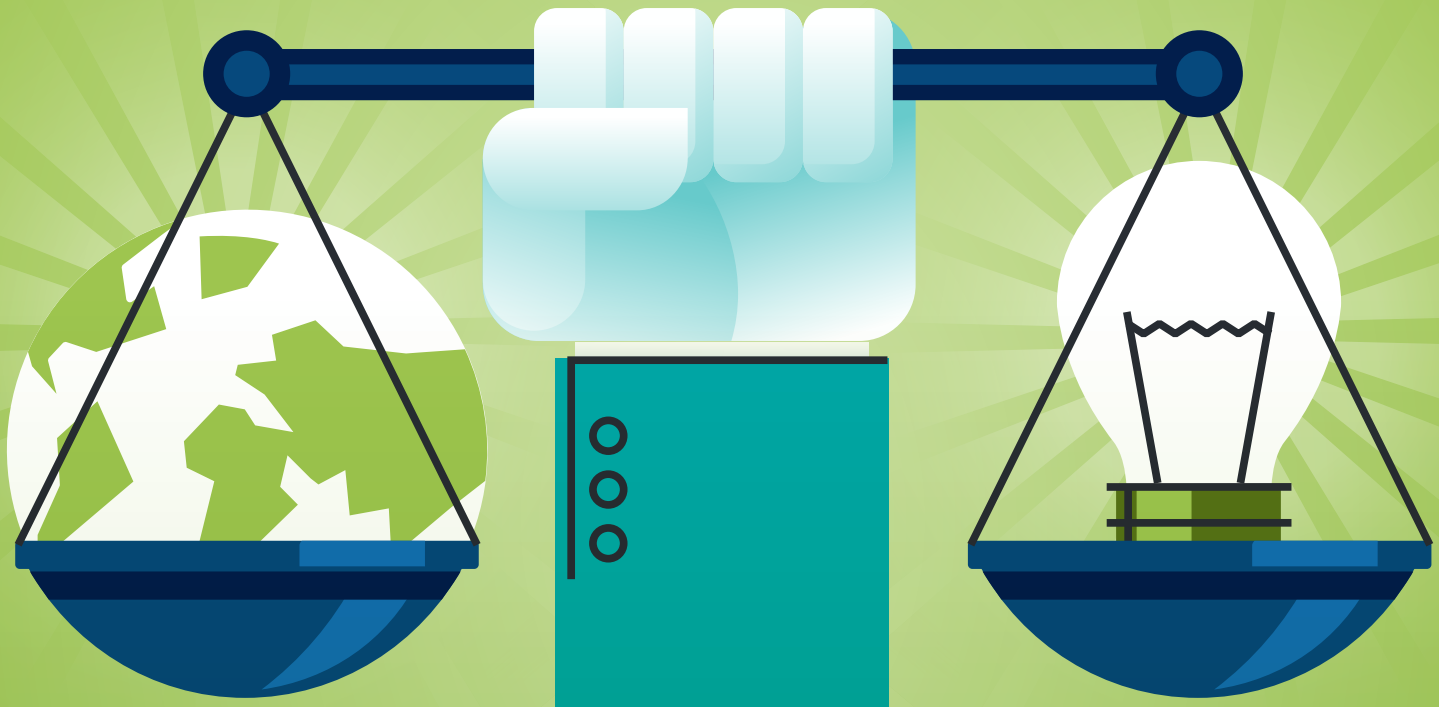
In closing, while ECA and the business events industry appreciates CARB's overall environmental goals, this Proposed Regulation requires significant changes to meet CARB's objectives while allowing forward-looking industries like ours to continue along our path to net zero emissions.

If ECA can provide you with additional information and perspective on this important issue, please contact me by phone at (703) 672-0780 or email at tommy.goodwin@exhibitionsconferencesalliance.org. Thank you very much.

Sincerely,

Thomas F. (Tommy) Goodwin, FASAE, CAE, PMP, CMP
Vice President

NET ZERO CARBON EVENTS



A Net Zero Roadmap for the Events Industry

November 2022

Contents

ABOUT THE NET ZERO CARBON EVENTS INITIATIVE

The Net Zero Carbon Events initiative aims to bring together a wide range of industry stakeholders to:

- Communicate jointly our industry's commitment to tackling climate change and driving towards Net Zero by 2050.
- Develop common methodologies for measuring the industry's direct, indirect and supply chain greenhouse gas emissions.
- Construct an industry-wide Roadmap towards Net Zero by 2050, and emissions reductions by 2030 in line with the Paris Agreement and climate science, with support and guidance on key issues.
- Foster collaboration with suppliers and customers to ensure alignment and common approaches.
- Establish common mechanisms for reporting progress and sharing best practice.

It is open to all organisations involved in events, who can join the initiative at any time. Registration is free of charge but all supporters are invited to contribute financially. The current contributors, at the release of this document, are listed on the back page.

For more information visit www.netzerocarbonevents.org

INTRODUCTION

SETTING THE SCENE

Events are key to human collaboration. They provide a platform for innovation, business, partnerships and new experiences. From large trade shows and exhibitions to festivals and live music or sporting events, to smaller business events and conferences, to gatherings of teams or families, events are an integral part of our society. The events industry understands its economic and social benefits, and at the same time is clear on its responsibility to minimise the climate impacts it generates.

The Net Zero Carbon Events initiative was launched in August 2021 with the aim of bringing the global events industry together on a common journey to Net Zero by 2050. This Roadmap is the result of a collaborative approach by the 400 plus organisations from 55 countries which have become supporters of the initiative and aims to set out a common pathway to achieve this ambitious goal.

This collaborative cross-industry approach is more important than ever in the current context of economic downturn, challenging global supply chains and increasing costs. Smaller players are already being squeezed financially and, while the economic benefits of decarbonisation will come into play in the medium term, in the short-term economic challenges may prevail. By working together, the full force of the events industry can highlight not only the benefits it brings to the world, but also the support which may be needed to make the required changes in order to achieve Net Zero.

ESTABLISHING A JOURNEY TOGETHER

The Net Zero Carbon Events Pledge

The Net Zero Carbon Events Pledge was launched in November 2021 as a means to gather momentum across the industry. Signatories commit to the following four actions in order to achieve net zero carbon emissions by 2050:

- Before the end of 2023, publish the organisation's pathway to achieve Net Zero by 2050 at the latest, with an interim target in line with the Paris Agreement's requirement to reduce global GHG emissions by 50% by 2030.
- Collaborate with partners, suppliers and customers to drive change across the value chain.
- Measure and track our Scope 1, 2 and 3 GHG emissions according to industry best practice.
- Report on progress at least every two years.

Engaging across Stakeholders

Perhaps more than any other industry sector, the events industry is a complex multiplicity of stakeholders working on a huge number of projects of all sizes, all over the world. This includes not those directly involved in event delivery such as event organisers who may range from multinational businesses to individuals within a company (and much in between); venues, which may be large convention centers with multiple uses, sports stadiums, concert halls, hotels, or even an empty field; and all the service providers which help deliver events on the ground; but also destinations in the form of governments, convention bureaux, destination management organisations or local communities that encourage and support events in their areas; companies which exhibit at or sponsor events; and of course the attendees without whom events would not exist.

This Roadmap does not seek to provide the answers to all these groups and to all variations of events, but it aims to provide a common framework for approaching Net Zero which can be applied and adapted by individual companies and across the industry. This first version of the Roadmap focuses on the operators who are directly involved in the delivery of an event,

namely organisers, venues and service providers. That is not to say that other stakeholders such as destinations or clients (such as exhibiting companies in the case of exhibitions, for instance) do not have an important role to play, and this will be addressed in more detail in further iterations of the Roadmap. In the meantime, Part 2 - Section 6 provides some guidance on how this Roadmap can be used to engage with these important stakeholders.

A System-wide Approach

Ultimately, given the challenges of climate change, it is anticipated that it will not be sufficient for a single organisation or group of organisations, or indeed individual events, to take steps to decarbonise. While the need to meet, discuss and showcase products and share experiences remains the starting point for establishing events, a rethink in how events are planned and designed across the whole system will need to be considered. This is also required in the context of rising costs for customers. As such change needs to be driven through the whole events value chain.

Making the systemic change necessary will require not only individual companies to focus on the decarbonisation of their own activities and supply chain, but also necessitate cross-collaboration to ensure that some of the most challenging elements of the events industry are prioritised and addressed. Within the industry, there might be a need to address the extra spending required to become Net Zero for some small business operators who are the backbone of the event industry. The cross-collaboration will also include partnering with other industries such as aviation, shipping, haulage, and food production to develop new solutions and align on progress.

For this reason, the Roadmap sets out:

- The Company Pathway, in Chapter 3, which provides guidance for those companies who have signed the Pledge (and others who have not but still wish to pursue Net Zero by 2050) as to the progress they should plan to make by certain milestones.
- Priority Action Areas, in Chapter 4, which identify the priority areas for collaboration across the industry and with external stakeholders, such as those in 'supporting' industries (e.g. aviation, food production, energy supply) and where new approaches and innovative solutions will need to be applied as we move towards the 2050 goal.

Level Setting

The speed at which action towards Net Zero can be taken will not only depend on the commitment and resources an organisation or group of organisations dedicates to decarbonisation, but also external factors relating to the locations in which they operate. In addition, organisations which have already taken significant steps may show slower progress than those starting out as they will have already addressed the 'low hanging fruit'. In some cases a specific business model may influence how an organisation addresses Net Zero. There is therefore no single pathway or timeline which can be applied to all organisations in all locations. While the end goal is the same – Net Zero by 2050 – some may reach this sooner than others, and the pathway taken may differ from company to company with different milestones reached at different times. These 'equity considerations' are highlighted throughout the Roadmap. Given the multitude of different approaches these have not been fully defined at this point, and work to provide more guidance will be provided in further iterations of the Roadmap.

Setting a Baseline

Identifying a starting point, or baseline, is a key element when setting carbon reduction targets. The Paris Agreement calls for a 50% reduction in emissions by 2030, but does not state a universal baseline. As such companies can determine their baseline depending on data availability or other factors relating to their business such as after a growth period or acquisition. The Roadmap provides guidance on how to set a baseline which can be applied at company level in Part 2 - Section 3.

Digital and Hybrid Events

The Covid-19 pandemic had a deep impact on the events industry. The forced move online was embraced by many players and has fundamentally changed how people think about events, the need to travel to events, and how to engage with geographically diverse audiences. It is clear that increased use of digital solutions and opportunities for hybrid events are now embedded in the future of the events industry, and provide a significant opportunity to make event content accessible to much wider audiences, many of whom would not have been able to access the content or event in person. However, the advent of such opportunities has not negated the value of face-to-face interactions. While content can successfully be delivered online, it has proven less effective in replicating the opportunities for networking and business generation (in the case of business events) or pure enjoyment and communal experience (in the case of sporting, music or other consumer events).

As a result, while the Net Zero Carbon Events initiative recognises the role that digital and hybrid events can play, they are not proposed as a solution to decarbonising the events industry. Not only does digital have a footprint of its own, but more importantly the role of this Roadmap is to provide the means for decarbonising the face-to-face element of events which is the foundation upon which the industry's positive contribution to humanity is based. Simply moving events online, as we were forced to do during the pandemic, is not a long-term solution.

Addressing the Impact of Attendee Travel and Accommodation Emissions

The emissions generated by the travel of attendees to events are significant and in almost all cases the largest contributor to an event's carbon footprint. The events industry is clear that it has a responsibility to address these emissions, through working with partners in the travel industry, communicating sustainable travel options to participants, and making planning decisions which result in more efficient or reduced travel. As such, one of the five action areas identified in this Roadmap focuses on travel-related emissions. The guidance in this Roadmap recommends that event organisers measure and report the travel emissions related to attendees and, that when calculating the overall carbon footprint of an event, they should be included. However, given the perceived low level of influence events organisers have over travel emissions, currently emissions from attendee travel to the destination and accommodation may be excluded from a company's Scope 3 (value chain) emissions calculation (except when the organiser directly facilitates the purchase of a ticket or room). This will be reviewed in two years' time. In the meantime, event organisers wishing to get ahead of the game can choose to include attendee travel and accommodation emissions in their Scope 3 from now and develop their net zero pathway accordingly. Events wishing to certify as 'carbon neutral' can do so by measuring the full carbon footprint of the event, including attendee travel and accommodation, and offsetting accordingly (following the guidance on 'good' offsetting set out in Part 2 - Section 5 and relevant carbon neutral guidance).

1 Please see Appendix H for list of Task Force participants

THE ROADMAP

Navigating the Roadmap

The Roadmap is divided into three parts:

- **Part 1:** A Common Approach sets out the Company Pathway and Priority Action areas and provides the overarching framework for the events industry to move towards Net Zero.
- **Part 2:** Guidelines and Resources provides technical support to companies as they start to construct their net zero pathway, and endeavours to establish some common approaches to be used across the industry to ensure consistency.
- **Part 3:** Further Information includes a number of appendices which provide background information on key topics.

How the Roadmap was Developed

The Roadmap has been developed as a consultative process involving the members of the Net Zero Carbon Events Task Force[1] and the wider supporter community. A survey of supporters was undertaken in January 2022 which, combined with a review of relevant literature and existing information and enhanced by consultations with Task Force members, as well as an initial review of the working document by the Task Force and other selected stakeholders, informed a first draft. This first draft was then presented to all supporters for comment and feedback, which was integrated into a second draft which was then made available to a wider group of stakeholders for review. It was then updated following feedback and is now presented in its final form. For further information on the methodology and consultations please see Appendix H.

Next Steps

The Roadmap provides the framework which will guide the events industry on its journey to Net Zero. In the next phase of the Net Zero Carbon Events initiative, the focus will shift to enabling companies to address the challenges of decarbonisation through workstreams which align with the Priority Action Areas in order to:

- Identify actions which can be implemented easily and without major changes needing to be made.
- Highlight projects and initiatives already underway which are defining new approaches and provide a mechanism for sharing learnings and best practices.
- Apply creative thinking to explore new and innovative ways of doing things, such as use of local suppliers, consolidation of operations and developing a calendar of events to reduce transportation needs between shows.

Additional workstreams will focus on the development of metrics and measurement methodologies, industry-wide reporting of progress and further exploration of the opportunities from a strategic cross-industry approach to offsetting.

Further information on all workstreams is available at www.netzerocarbonevents.org/resources

PART 1:

A COMMON APPROACH

CHAPTER 1: THE ROAD TO NET ZERO

1.1.1 THE CLIMATE EMERGENCY

In the words of the International Panel on Climate Change (IPCC), "Climate change is widespread, rapid and intensifying". In recent years, there has been more interest in climate change and sustainability. However, despite the increase in public plans and commitments made by countries, cities and companies alike, the science still shows that humanity is far from halting climate change beyond a point that is irreversible, defined as maintaining temperatures at 1.5 degrees above pre-industrial levels as stipulated by the Paris Agreement.

As attention and urgency of climate change intensifies, governments have been taking more serious action and there has been a wave of climate-related policies and regulations as governments set their own goals and targets. For example, the EU Fit for 55 Plan is aligning laws with the group's target of cutting emissions by 55% by 2030.

Consequently, rather than waiting for explicit policy regulations before acting, this 2022-2050 Roadmap hopes to inspire pre-emptive action that will help the events industry make a decisive transition towards more sustainable events.

Climate action is also increasingly a priority amongst investors, and as a result, Environmental, Social and Governance (ESG) investing is gaining momentum. Shareholders are also pushing to get their voice heard through initiatives such as the Task Force on Climate Related Financial Disclosure (TCFD) and shareholder activism.

Finally, consumers are also becoming more aware of sustainability impacts in their purchasing. Nearly 80% of consumers are changing their purchase preference based on social responsibility or environmental impact[2]. In the travel sector, Booking.com's 2022 Sustainable Travel Report[3] found that 81% of global travelers agreed that sustainable travel is important to them, with 50% saying that recent news about climate change has influenced them to make more sustainable travel choices.

Event attendees are also becoming more attuned to sustainability. Research by UFI[4] shows that 73% of exhibitors and 71% of visitors believe it is important that a trade show displays a strong commitment to sustainability. Moreover, 34% of exhibitors and 36% of visitors would not attend if the trade show did not have a reasonable approach to sustainability.

Signatories to the Net Zero Carbon Events Pledge have committed to Net Zero by 2050 and, in order to achieve that, to halving their emissions by 50% by 2030. The Paris Agreement indicates the level of action required in order to limit temperature rises to 1.5 degrees. However, even if temperature increases are contained at 1.5 degrees, the impacts will still be significant in many parts of the world. Changing weather patterns, increased extreme weather events, sea level rise, wildfires and drought are already causing devastation.

As a global industry which generates substantial employment and economic impact the events sector recognises the part it can and must play in reducing carbon emissions and mitigating the impacts of climate change.

1.1.2 NET ZERO IN PRACTICE

Net Zero refers to a balance between artificial greenhouse gas (GHG) emissions and their removal from the atmosphere. To achieve this balance, GHG emissions must be reduced and the non-avoided ones must be compensated or "neutralised" through the use of long-term carbon capture solutions.

It is different from 'carbon neutral'. For carbon neutrality, which can be an intermediate step

2 https://www.circularonline.co.uk/news/research-sustainability-rising-up-consumer-agenda/
3 https://globalnews.booking.com/climate-community-and-choice-bookingcom-reveals-the-trends-shaping-sustainable-travel-in-2022/
4 https://www.ufi.org/wp-content/uploads/2021/09/UFI_report_on_Sustainability_July-2021.pdf (page 19)

towards Net Zero, the non-avoided emissions are compensated through the use of traditional offsets (carbon credits coming from projects that develop renewable energies, efficient transport etc.), which fund reductions anywhere in the world rather than funding removals.

The Greenhouse Gas (GHG) Protocol categorises carbon emissions into three 'scopes' (see Figure 1.1.1).

- Scope 1 – Direct GHG emissions that occur from sources owned or controlled by the organisation.
- Scope 2 – Indirect GHG emissions from generation of purchased electricity consumed by the organisation.
- Scope 3 – Other indirect GHG emissions that occur as a consequence of the activities of the organisation, but occur from sources not owned or controlled by the organisation.

For an organisation to achieve Net Zero, emissions from all three scopes should be addressed. This is important for the events industry as, not only will events companies have to address supply chain emissions, but events – and travel to events – can constitute a significant part of other companies' Scope 3 emissions.

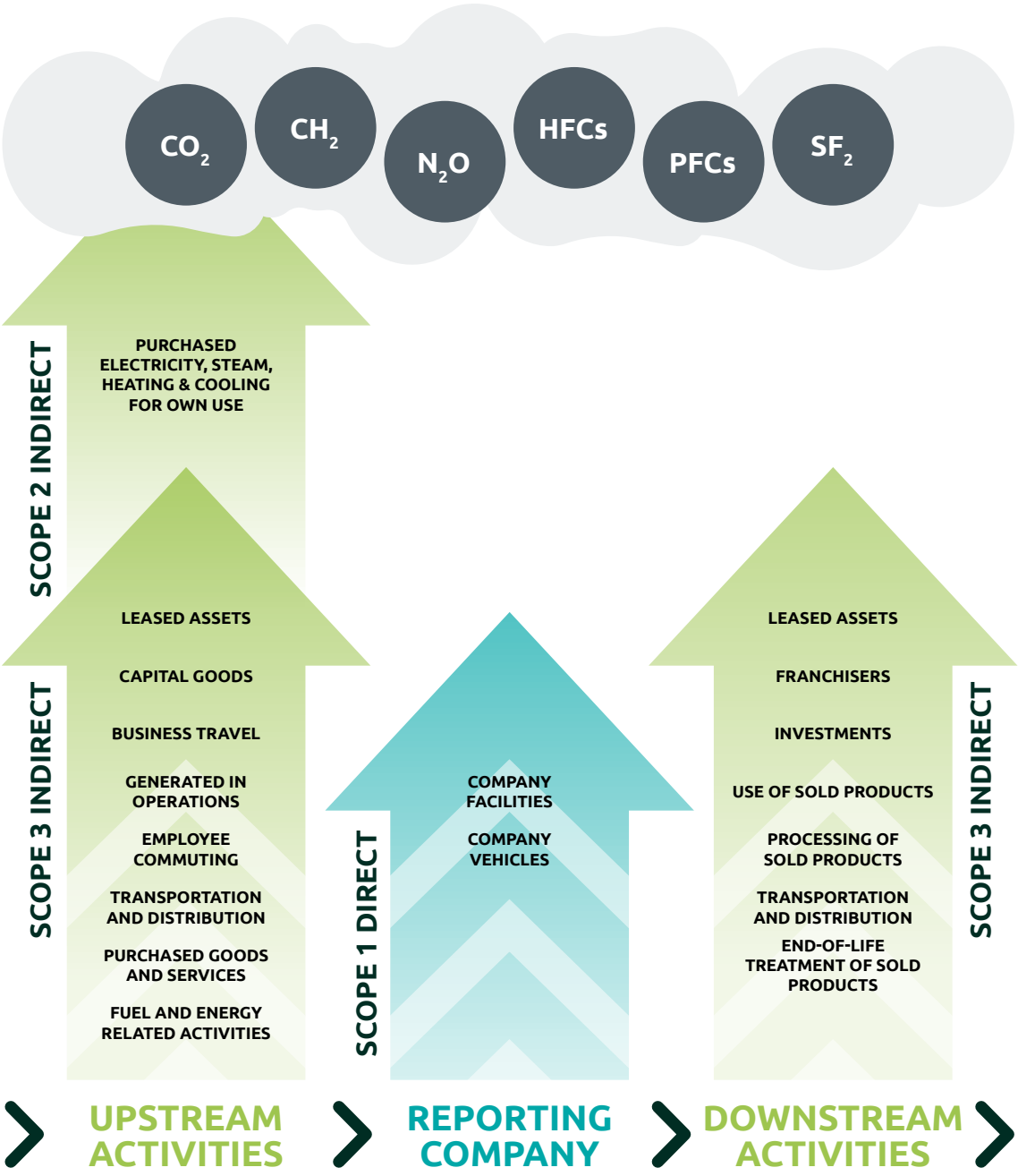


Figure 1.1.1 Emissions Scopes. Source: GHG Protocol

When it comes to addressing a company's carbon footprint, the priority should be to avoid carbon emissions in the first place. Strategies should then focus on reducing emissions (through efficiencies), followed by replacing high carbon activities with low carbon alternatives. As a final option, carbon offsetting through capture or removal can be considered.

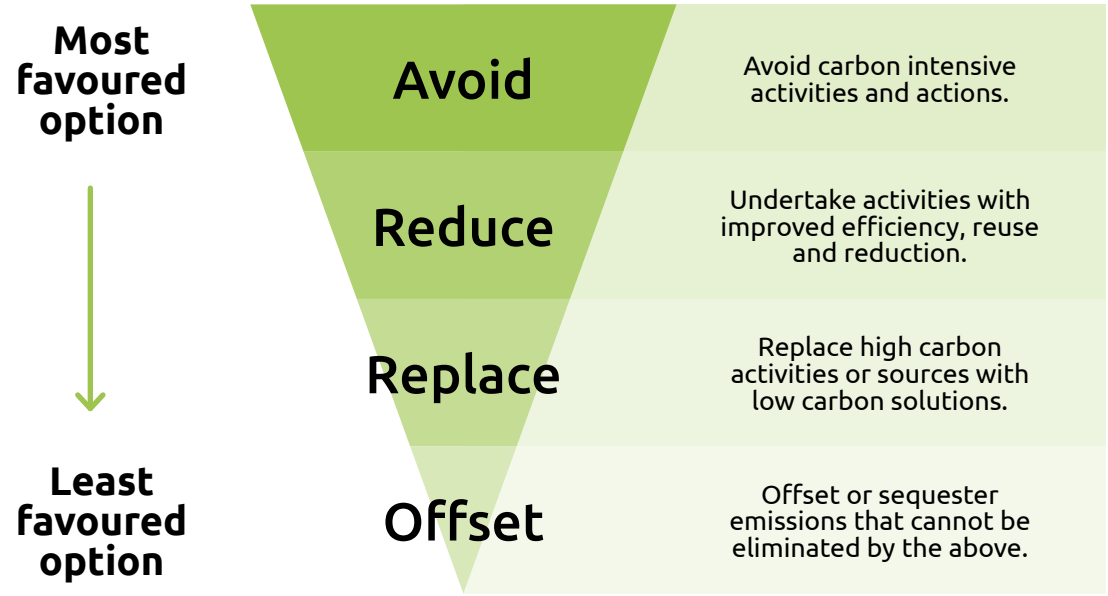


Figure 1.1.2. Carbon Management Hierarchy. Source: https://ukcop26.org/wp-content/uploads/2021/11/Executive-summary-of-our-Carbon-Management-Plan.docx.pdf

1.1.3 THE CARBON FOOTPRINT OF EVENTS

The carbon footprint of events varies significantly depending on event type, size and location. The larger the event and the further attendees have to travel, the larger the carbon footprint is likely to be. However, different types of event create emissions in different ways and the amount varies from event to event.

For the vast majority of events, the largest single contributor to carbon emissions is travel to and from the event. As shown by data collected from across the French events industry over two years, this holds true even for national events where travel distances may be less than for international events. (Figure 1.1.3). Research on the US and Canada B2B exhibition industry backs this up with 85% of carbon emissions being generated by attendee transport, 13% venue energy and 1% logistics[5].

Other significant contributors to the carbon footprint of an event vary according to the type of event. For those events which have a large built element, such as trade shows and exhibitions, 'space design and production' (which includes stands and other fit-out elements) is normally the second biggest contributor after travel, although it varies depending on event type and location[6]. For corporate events, it tends to be the carbon impact of food served. Freight and logistics, namely the transportation of equipment and goods to an event, is also an important contributor, especially for exhibitions. Venue energy will also be important, depending on the type of venue used and the size of the event. By removing the travel element (see Figure 1.1.4) the impacts of these different emissions can be seen more clearly. Appendix D provides further detail on and definitions for the emissions sources of an event.

5 https://www.ufi.org/wp-content/uploads/2022/09/Finding_the_Future-Final_Report.pdf pg
6 For example, the research on the US and Canada (cited above) suggests that venue energy is more significant.

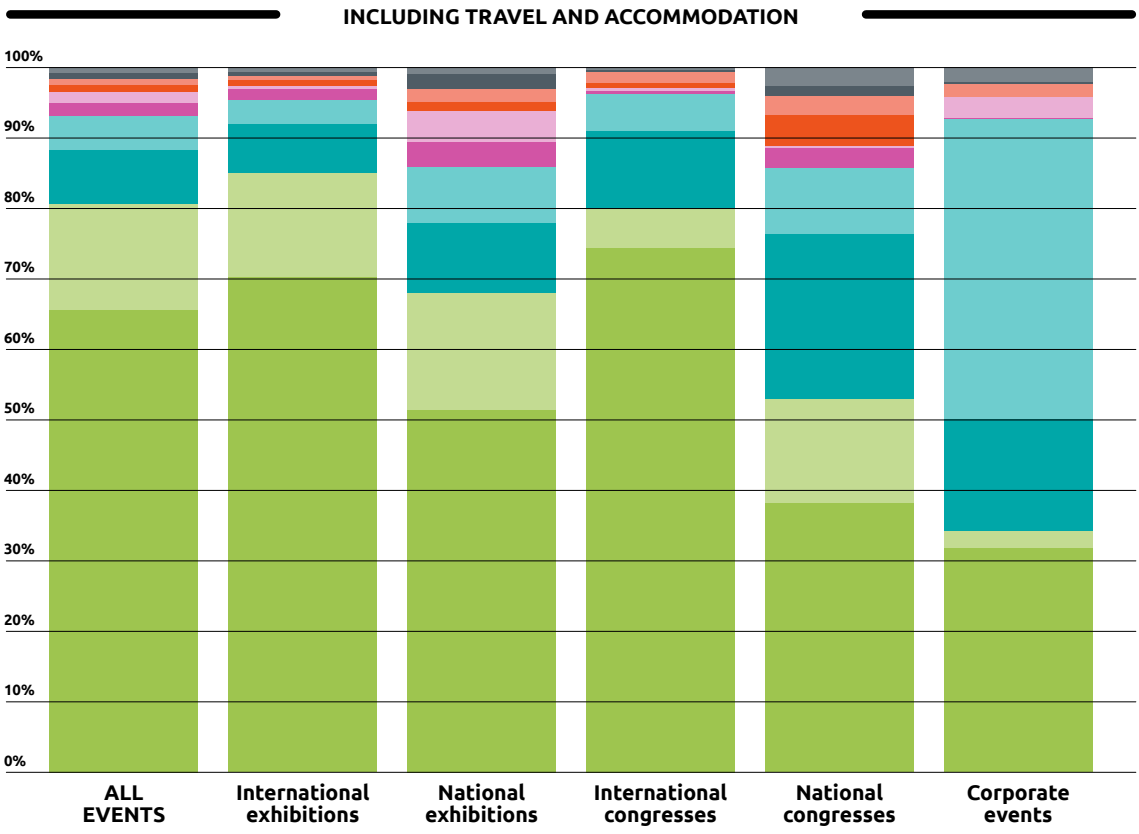


Figure 1.1.3 The Carbon Emissions of Events in France Source: Unimev

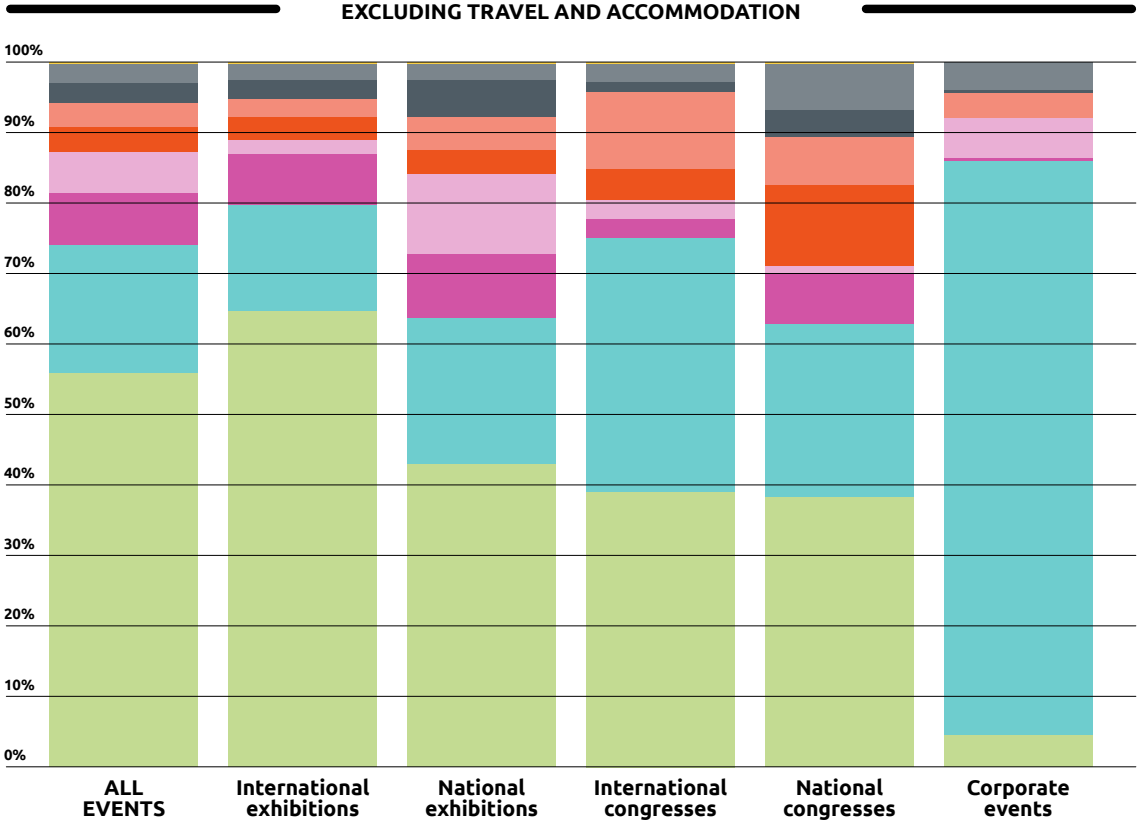
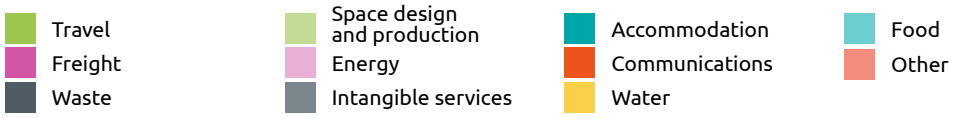


Figure 1.1.4 The Carbon Emissions of Events in France Source: Unimev



In reality each event's carbon footprint is different and very often measured in a different way. As the industry starts on its journey to Net Zero, addressing the challenges of measurement will be a priority.

- The 2021 Green Build Conference[7] in San Diego, California reported that 87% of its total carbon emissions were from air travel, with 10% from the venue, 1.5% from freight and local transport, and 1.5% from accommodation.
- The 2021 season of Formula E[8], reported that 71% of its carbon footprint was freight, 14% was generated by staff travels, 7% by operations, 5% by spectator travels, 2% food and drink, and 1% car.
- Research from Japan[9] shows that while transportation is still the most significant contributor, it only accounts for 56% of the events footprint. Other emissions sources are 'planning and preparation' (13%), accommodation (12%), entertainment and shopping (10%), food and beverage (7%).

Quantification of the footprint of virtual events and the digital elements of in-person events is an evolving field. The carbon footprint of virtual events includes[10] the life cycle emissions from attendee computers, network data transfer energy use, server energy use, and other activities (lighting, monitors etc.) that would not have taken place without the event. In one example of a virtual conference which took place in May 2022, 64% of emissions were from network data transfer, 19% from pre-conference planning meetings and 11% from computer use during the conference. Other analysis[11] has shown that the carbon emissions of a virtual event can be more or less the same as the on-site elements of a live event (i.e. without the transport emissions).

1.1.4 THE NEED FOR SYSTEMIC CHANGE

The value chain of the events industry is large and complex, with many and varied stakeholders. This includes event organisers, venues, a whole range of service providers, as well as exhibiting companies and those who visit the event. Each event is unique in the way it is delivered and the specific stakeholders it includes. However, all events are supported by the systems and relationships which underpin the events industry. This means that, in order for a specific event to be Net Zero, the systems and structures which support it need to be Net Zero. On its own there is no such thing as a 'net zero event'.

As Figure 1.1.5 shows, an event is like the leaf on a tree – it can only be healthy if the whole system which supports it is healthy. This is in contrast to a 'carbon neutral event' whereby the emissions of an event can be quantified and then offset.

As a result, systemic change and progress is needed; events industry stakeholders need to plan and follow their own path to Net Zero, while at the same time building momentum across the value chain so that the system itself also starts to decarbonise. In the current climate of increasing costs, there is an added imperative to 'do things differently' across the system and design events which are more efficient.

7 https://images.go.informaconnect01.com/Web/UBMSCG/%7Ba31304fa-6652-45ab-b27e-2e54cb42026b%7D_GB21_Sustainability_Report_Final_02.10.22.pdf
8 https://www.fiaformulae.com/en/news/2021/september/how-formula-e-achieved-net-zero#:~:text=It's%20a%20year%20since%20the,seven%20seasons%20of%20electric%20racing
9 https://www.mdpi.com/2071-1050/12/12/5001/pdf
10 https://www.tandfonline.com/doi/full/10.1080/00207233.2020.1864190
11 https://www.chrisjohnson.earth/2020/08/26/how-significant-is-the-environmental-footprint-of-online-vs-real-life-events/

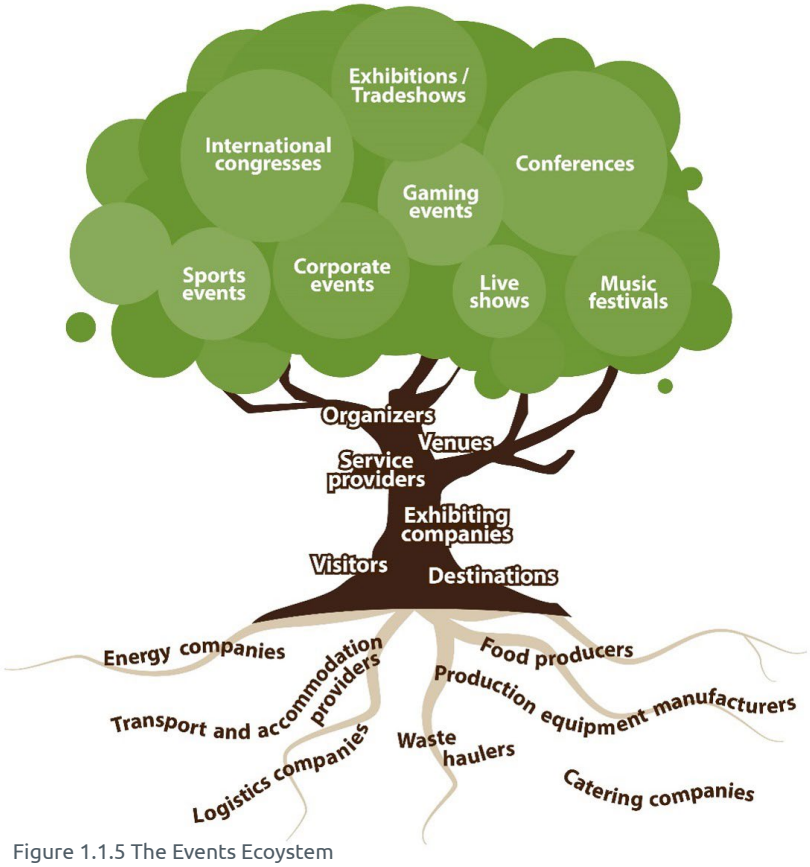


Figure 1.1.5 The Events Ecoystem

1.1.5 INFLUENCING ACTION ACROSS THE VALUE CHAIN

One of the most challenging aspects which faces the events industry is that the majority of emissions associated with an event are outside the direct influence of events industry stakeholders. Apart from energy consumed at the venue, over which the venue itself has the ability to reduce or replace with renewables[12], all other emissions are generated by entities outside of the events industry – the aviation sector, hotels, road transportation, producers of stands, production materials (e.g. carpets), promotional material, paper, AV systems, food, etc. As outlined above, to achieve Net Zero, entities must address their upstream and downstream value chain emissions. In order to progress towards Net Zero one of the key opportunities for the events industry as individual companies and as a whole, is to engage with and drive progress through the value chain.

Consequently, as well as pursuing their own net zero pathway, events companies need to work collaboratively both within the industry and with suppliers to the industry in order to inspire and promote action across the board.

1.1.6 OTHER INDUSTRY PATHWAYS

The events industry is not alone in its commitment to Net Zero. Many of the companies who supply the industry and, indeed, other industries themselves have published commitments and processes to lead to Net Zero. As the world unites on the net zero journey, progress will be made together. Although the trajectory will change depending on various contextual and geographic factors, and in some cases the adoption of as yet undefined innovations, global actions to decarbonise will also play an important role in the events industry's ability to reach Net Zero by 2050. Figures 1.1.6 and 1.1.7 show how the events industry footprint decarbonisation pathway might look, based on published goals and plans by other industries[13]. Figure 1.1.7 removes travel and accommodation in order to highlight the opportunities in the elements where the events industry has a higher level of influence.

12 It is noted that during and event, organisers and exhibitors have leverage over temperature setting and equipment standards which may impact consumption.

13 See Appendix C for an overview of other industry commitments and pathways. Note that this is illustrative only and the graphic starts from 2025 which is not the assumed baseline for a 50% reduction to 2030.

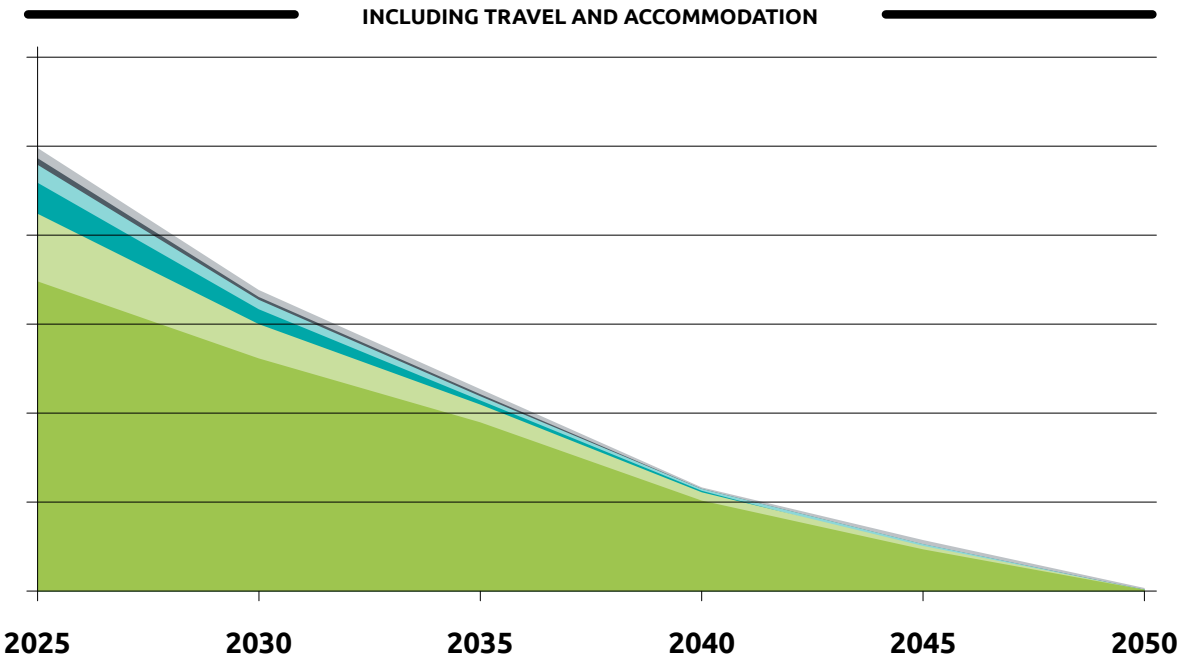


Figure 1.1.6 Net Zero Pathway from other industries. Initial proportions based on Unimev data

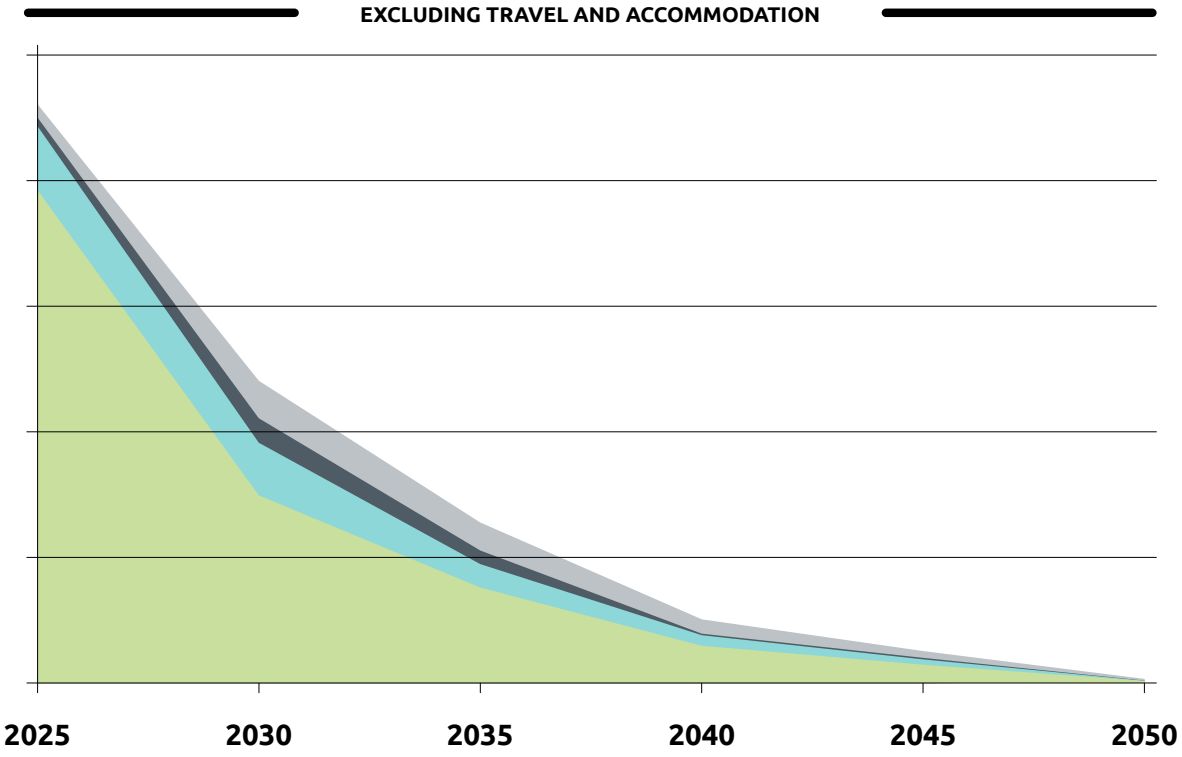
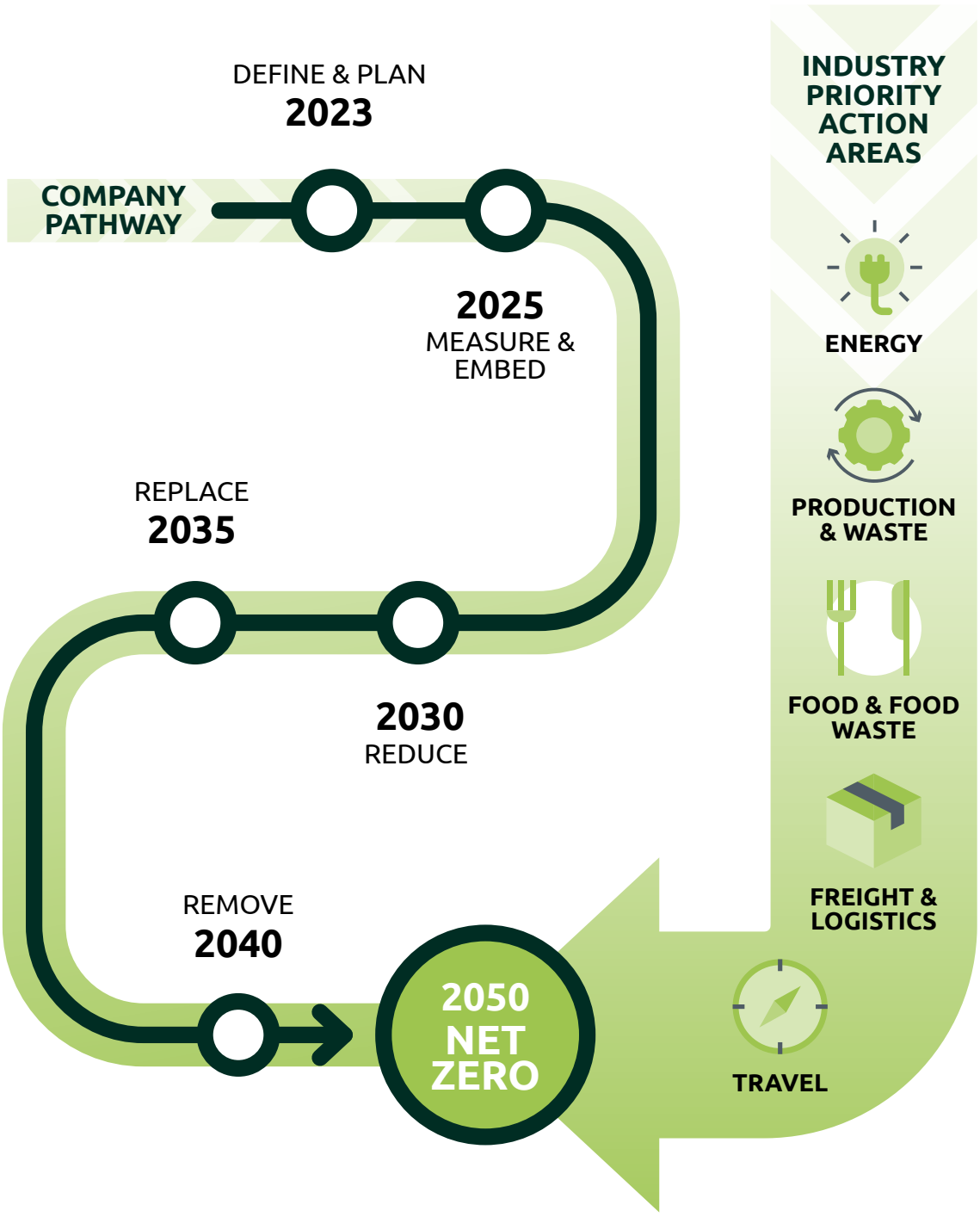


Figure 1.1.7 Net Zero Pathway from other industries, travel and accommodation removed. Initial proportions based on Unimev data

CHAPTER 2: THE ROADMAP – AN OVERVIEW

1.2.1 OVERVIEW

The Net Zero Roadmap for Events has been designed to provide a framework for consistent and collaborative action to be taken by the events industry towards achieving the goal of Net Zero by 2050. It simultaneously provides **a pathway for company progress to support signatories to the Net Zero Carbon Events Pledge**, and others who wish to follow it, as well as **a framework for building industry-wide momentum across priority action areas**. The guidance provided in the appendices aims to address some of the complexities embedded in the events industry so that consistent approaches can be deployed, such as defining Scope 3 boundaries.



1.2.2 THE COMPANY PATHWAY AND PRIORITY ACTION AREAS

The Company Pathway sets out the process that companies should seek to follow in their own net zero plans with suggested milestone years by which actions should be taken or progress should be made.

The Industry Priority Action Areas are the key topics where collaborative action, both within and outside the industry, is required in order for real progress to be made. Guidance is provided on what progress can be expected by the milestone years in order to support the development of initiatives and solutions.

1.2.3 EQUITY CONSIDERATIONS

The speed at which action towards Net Zero can be taken will not only depend on the commitment and resources an organisation or group of organisations dedicates to decarbonisation, but also external factors relating to the locations in which they operate. In addition, organisations which have already taken significant steps may move at a slower pace than those starting out. In some cases a specific business model may influence how an organisation addresses Net Zero. There is therefore no single pathway or timeline which can be applied to all organisations in all locations. While the end goal is the same – Net Zero by 2050 – some may reach this sooner than others, and the pathway taken may differ from company to company with different milestones reached at different times. Where relevant, these 'equity considerations'[14] are outlined and provide guidance which can be applied to the specific circumstances of a particular organisation.

1.2.4 EVOLUTION OVER TIME

As momentum builds towards Net Zero, new commitments will be made and new solutions found. In addition, the quality and availability of data will improve and provide more robust insights into the pace and effectiveness of various decarbonisation actions across the events industry. It is expected, therefore, that this Roadmap will evolve as expectations and possibilities change as will the timescales, frameworks and guidance within it.

14 The concept of equity considerations or equity principles comes from the UN Race to Zero criteria and is also part of UNFCCC's guiding principles.

CHAPTER 3: THE COMPANY PATHWAY

1.3.1 OVERVIEW

The company pathway sets out the stages that a company should aim to reach by key milestone dates. It is expected that different companies will progress at different speeds but this pathway provides a guideline to be followed. This can apply to any company in the events industry, whether organiser, venue, service provider or supplier. The company pathway should be deployed on a company-wide basis.

The Company Pathway suggests that:

By 2023, the boundaries of your carbon footprint are defined using the Scope 1, 2 and 3 guidance set out in the Roadmap and a net zero plan is in place => **DEFINE AND PLAN**

By 2025, systems to measure your footprint at corporate and event level are in place and sustainability criteria is embedded in all new contracts => **MEASURE AND EMBED**

By 2030, company carbon emissions[15] are reduced by 50% through efficiencies and the elimination of carbon intensive items and processes from the system => **REDUCE**

By 2035, remaining carbon intensive activities and items are replaced with renewable, reusable, sustainable alternatives => **REPLACE**

By 2040, any residual carbon emissions are removed from the atmosphere using robust and accredited carbon capture or removal processes => **REMOVE**

The milestone dates provide neither a beginning nor an end point for these actions, as all will continue over time and will take time to develop. However they will provide an indication of where a company should be in their net zero process.

1.3.2 DEFINE AND PLAN

As an immediate priority companies should seek to define their emissions boundaries and put a plan in place for decarbonisation. Part 2 – Section 1 provides detailed guidance on how events companies should approach Scopes 1, 2 and 3 as well as a framework for establishing your Scope 3 emissions.

Data for Scope 3 emissions is likely to be a challenge at this time; however; data on your own Scope 1 and 2 emissions (energy generated on site and electricity purchased from the Grid) should be available as a start.

At this stage robust sustainability policies should also be in place.

The Priority Action Areas described in the next chapter, where they are relevant to your business, can help you structure your decarbonisation approach. Your plan can evolve over time but it should include the stages of measure and embed, reduce, replace and remove as set out in this Roadmap.

1.3.3 MEASURE AND EMBED

There is an urgent imperative for the events industry to develop the common methodologies and metrics, and supporting tools, to enable consistent and quality data to be collected and shared regularly. The Net Zero Carbon Events initiative is spearheading this, working with stakeholders who are already active in this area[16]. There is the opportunity to develop

15 All Scope 1 and 2 emissions should be reduced by 50% and as much progress as possible made on Scope 3, ideally 50% reduction.

16 It is anticipated that by the time of publication of the Roadmap in November 2022, a common methodology and metrics for apportioning the energy consumption of events has been developed and agreed and a supporting infrastructure for establishing industry-wide emissions factors is in place.

industry ratios to be used where sub-metered or apportioned data is not available. In the meantime, Part 2 – Section 2 and Appendix F provide some guidance on what data should be collected, what questions should be asked and where the responsibilities for collecting and sharing data can lie.

By 2025, all contracts should have robust sustainability and carbon reduction criteria in place. By this time some companies may be making purchasing decisions based on sustainability, but as a minimum the right questions should be asked of suppliers and basic elements, such as their having a sustainability or net zero plan in place, should be required.

1.3.4 REDUCE, REPLACE AND REMOVE

Actions to reduce, replace and remove carbon emissions from your value chain should be underway by the relevant milestone years. There are many industry resources which can provide guidance on how to approach this, and the Priority Action Areas should provide the framework for collaborative action. The 'system wide approach' section of each Priority Action Area indicates topline actions which different stakeholders can take.

Biodiversity and Climate Change

The links between biodiversity and climate change go two ways. While climate change is one of the main drivers of biodiversity loss, destruction of ecosystems accelerates climate change and increases vulnerability to it by undermining nature's ability to regulate GHG emissions and withstand extreme weather. Thus, the protection of biodiversity and reduction of carbon emissions are increasingly being seen as joint and inextricably linked activities. This is highlighted by the recent addition of biodiversity criteria within the Race to Zero Leadership criteria, and the growing momentum behind the Task Force on Nature Related Financial Disclosure (TCND). As plans evolve over time, biodiversity will need to be considered by companies as they make progress towards net zero. This could include ensuring biodiversity impact assessments when building new venues, incorporating biodiversity into buildings via rooftop gardens and biophilic design, ensuring sustainable wood is used, or sustainable seafood served.

CHAPTER 4: PRIORITY ACTION AREAS

The Roadmap is structured into five Priority Action Areas. Each area has its own stakeholder group, dependencies and potential net zero pathway. The pathways can be used to inform an individual organisation's own net zero planning. However, these areas also provide the focus for collaborative action across the value chain. With the combined power of individual organisations driven by their own net zero ambitions and industry commitment to unite these ambitions across events, momentum can be achieved and progress made.

The five priority action areas were defined through the prioritisation methodology outlined in Appendix E and are:

1. Power events efficiently with clean, renewable energy
2. Redesign events to utilise sustainable materials and be waste free
3. Source food sustainably, and eliminate food waste
4. Move goods and equipment efficiently and transition to zero emissions logistics
5. Work with and influence partners in the travel sector to reduce and mitigate the emissions of travel to events

Each action area contains:

- **2050 Vision** which outlines what Net Zero looks like in the context of that action area.
- **Pathway to 2050** which provides a framework for actions and goals against milestone years to 2050, starting with short term baseline activities which should be in place as soon as possible.
- **Equity considerations** as outlined in Section 3.3 to provide flexibility for different contextual challenges or opportunities.
- **A system-wide approach** which provides topline actions to be taken by different stakeholders.

Sustainable Development Goals Supported by Action Areas

Action Area 1:
Power events efficiently with clean, renewable energy.

Action Area 2:
Redesign events to utilise sustainable materials and be waste free.

Action Area 3:
Source food sustainably, and eliminate food waste.

Action Area 4:
Move goods and equipment efficiently and transition to zero emissions logistics.

Action Area 5:
Work with and influence partners in the travel sector to reduce and mitigate the emissions of travel to events.

ACTION AREA 1: POWER EVENTS EFFICIENTLY WITH CLEAN, RENEWABLE ENERGY

Introduction

Energy to power, heat and cool venues accounts for a significant portion of any event's emissions and can be addressed through reducing energy consumption and using renewable energy sources. It is also the most significant element of an event carbon footprint which falls within the Scope 1 or 2 of an event stakeholder, namely the venue itself. As the proportion of renewables in energy grids increases, this will positively impact the events industry's energy footprint. However, there is also significant opportunity for energy efficiency and generating on-site renewable sources, as well as purchasing renewable energy certificates from suppliers.

2050 Vision

By 2050, all energy related emissions should be accurately accounted for, energy efficiency should be maximised and renewable energy should be used where possible, including through the use of Energy Attribute Certificates (EACs). Credible offsets should only be deployed after the above steps have been exhausted to offset whatever emissions remain.

Pathway to 2050

Baseline activities	2025	2030	2035	2040	2050
Data collection and plans in place.	Measurement. monitoring and action underway.	Measurable progress made to reduce inefficiencies and renewables.	100% renewable where possible.	100% renewable for all markets.	**Net Zero.**
Energy usage data collected using a common metric and shared for all events. Baselines and targets for energy efficiency and renewables set. Venues have energy efficiency roadmap and carbon reduction plan in place.	Energy efficiency projects and transition to renewables underway with progress reported consistently. Universal system developed used by all venues to measure and track data.	50% reduction in energy consumption at venues shown from baseline, including gas. Renewable electricity is the norm for events, with 100% renewables used in 'immediate markets' and at least 50% in 'next markets'[17]. Plans in place for reducing residual emissions.	Continued reduction in energy consumption from baseline. 100% renewable electricity for immediate markets. 75% renewable electricity for next markets, including grid mix.	100% renewable electricity for all markets. Achieve an increase in % of total energy from renewables from 2035. Residual emissions from remaining non-renewable energy sources are quantified and offset as standard practice.	Net Zero is achieved, with all value chain emissions heavily decarbonised, residual emissions minimised, quantified, and offset where there is no viable alternative.
Continually show an increase in % of total energy from renewables from baseline with each checkpoint. Continually demonstrate reduction of at least 5%-10% from baseline through energy efficiency with each additional 5 year period.					

Equity Considerations

The ability of a venue to move towards renewable energy will depend on the renewable energy developments of the country / city in which it is located. The milestones therefore refer to 'immediate' and 'next' markets[18]:

- **Immediate markets are** those which have access to REC / EAC or direct sourcing of Power Purchase Agreements at reasonable costs since companies are able to purchase RE and reduce emissions immediately.
- **Next markets** are all other markets. They are expected to prioritise energy efficiency while waiting for the RE market to mature.

17 See definition overleaf.
18 See Net Zero Methodology for Hotels for further information.

Organisers may be constrained in terms of the location or the venue selected for an event. Where it is not possible to prioritise venues with more advanced energy efficiency or renewables programmes, data collection and tracking should still take place as a minimum and progress shown over time.

A System-wide Approach

	Short term (by 2025)	Medium term (2025-2035)
Venues	• Provide energy consumption data to organisers as standard. • Establish energy baseline and set reduction targets. • Put in place efficiency measures such as LEDs. • Put a plan in place for procurement of renewable energy from other sources if on-site is not possible. • Work with organisers to implement temperature guidelines which reduce energy consumption.	• Submetering in place for better attribution of emissions to different events, to support more accurate consumption data. • Show measurable progress in terms of energy efficiency and moving to renewables. • Procurement of renewable energy from other sources if on-site not possible. PPAs and VPPAs are preferred[19]. • Development of on-site renewables where feasible.
Organisers	• Focus on embedding sustainability and carbon reduction into events. • Request energy consumption data from venues as standard. • Prioritise working with venues which have energy reduction targets in place. • Ensure that all lighting contracted by the organiser is LED. • Work with venues to implement temperature guidelines which reduce energy consumption.	• Commit to working with venues who have shown a measurable improvement in energy efficiency and use a high % of renewables. • Require venues and service providers to align with the industry RE targets above. Where that is not possible, organisers should work with venues to budget to offset the remaining emissions on an event by event basis. • Share any cost increases as a result of renewables being purchased.
Service Providers	• On-site energy efficiency plans in place. • Ensure that all lighting used is LED. • Ensure any new equipment procured is of high energy efficiency	• Required energy efficiency plans in place for overall business operations. • Ongoing work with exhibitors to reduce energy consumption on site.

19 See Appendix G for more information on purchased renewable energy.

ACTION AREA 2: REDESIGN EVENTS TO UTILISE SUSTAINABLE MATERIALS AND BE WASTE FREE

Introduction

The temporary nature of events means that the events industry has evolved over time to be one where infrastructure is specifically designed for short-term use. This has allowed for huge flexibility in terms of how an event is constructed and the ability for bespoke items to be brought in for a single occasion. The production and disposal of items is a significant contributor to an event's carbon footprint. In order to move towards Net Zero the industry as a whole needs to adopt a more 'circular' approach to the production of events, by using reusable items, sustainable materials and designing out the significant amounts of waste.

Circular Economy

Our global economy takes a largely linear approach to the production of products. Companies create value by producing and selling as many products as possible. This system requires taking a raw material, making something with it, using it and then throwing the item away: Take-Make-Use-Waste.

This approach has led to deficiencies at both the extraction end where the mining or sourcing of raw materials has created tremendous ecological and social harm, and at the waste end where we now have mountains of rubbish that cannot be processed efficiently, nor do they break down naturally. In a linear approach, sustainability comes through trying to minimise the ecological impact to get the same output. In events, these items include marketing collateral and promotional materials such as printed programme agendas, flyers, posters, banners, as well as waste from food and food packaging, from décor - centerpieces, furniture, linen and oasis - and building materials from exhibition stands.

A circular approach changes the way that value is created and preserved. Where new products are needed, the outputs of one production process become the inputs of another, significantly reducing the need to extract resources or create waste. This circular process can also come from more use of the same goods (i.e. using and reusing a venue's tables and chairs rather than purchasing new ones or creating reusable printed materials such as signage) or converting products into services (i.e. renting booths instead of building and tearing down for each event). Value is created by preservation, and sustainability comes by using fewer resources and increasing the eco-efficiency of the entire system.

2050 Vision

By 2050 events will send zero waste to landfill and all assets and materials will be hired, repurposed, refurbished, recycled or re-used.

Baseline activities	2025	2030	2035	2040	2050
High level measurement of waste and diversion, industry—wide conversations on reducing / making sustainable production materials.	Measurement and action happening across events.	Measurable reduction in waste, quantifiable changes in production materials, elimination of single use plastics.	Ongoing progress and disposable items eliminated.	Production materials are sustainable or used to a minimum.	**Net Zero.**
Core criteria for measuring waste established, additional criteria under development. Collaborative effort underway to address quantity and sustainability of production materials used. Definitions of sustainable production materials / items agreed by the industry. Measurement methodologies for production materials agreed and tested.	Identification of items which are hired, repurposed, refurbished or reused / recycled assets / materials At least 50% of waste materials are diverted from landfill (25% in locations where infrastructure is challenging)[20]. Sustainable stands / production materials protocols / standards required as part of exhibitor contracts. Sustainable stand and production material protocols in place across the industry. Reduce use of plastic items where possible and only use those plastic types that are widely recycled. Each event to have a waste reduction plan in place and actions undertaken e.g. Foam core is no longer used.	At least 50% of items hired, repurposed, refurbished or reused / recycled assets / materials. At least 75% of waste materials are diverted from landfill (50% in locations where infrastructure is challenging as per equity considerations)[21]. Sustainable booth / production / materials protocols / standards followed as standard and communicated widely to stakeholders. Each event has a measurable sustainable stand and production material programme in place[22]. Eliminate single use plastics from all events. 100% recycling of plastics. Other hard to recycle materials are banned and replacements are common place.	Ongoing increase in proportion of items hired, repurposed, refurbished or reused / recycled assets / materials At least 90% of waste materials are diverted from landfill (75% in locations where infrastructure is challenging)[23]. Elimination of disposable stands and production materials from events.	Eliminate problematic and unnecessary plastics from design – this includes the plastics used within production materials as well as plastic items At least 90% of waste materials are diverted from landfill .	All assets / materials are hired, repurposed, refurbished or re-used. Zero waste to landfill[24].

20 For companies in Europe, the EU regulation of 55% reduction of municipal waste by 2030 would apply https://eur-lex.europa.eu/eli/dir/2018/851/oj

21 For companies in Europe, the EU regulation of 60% reduction of municipal waste by 2035 would apply https://eur-lex.europa.eu/eli/dir/2018/851/oj

22 This can include following sustainable booth and production protocols.

23 For companies in Europe, the EU regulation of 65% reduction of municipal waste by 2040 would apply https://eur-lex.europa.eu/eli/dir/2018/851/oj

24 It is recognised that there may be a small amount of waste which cannot be eliminated from the chain, and which cannot be reused or recycled but this should be an absolute minimum and clearly reported.

Equity Considerations

Waste infrastructure including recycling facilities varies across and within countries and the availability of facilities will directly impact the pace at which organisations can reduce waste. As a guiding principle organisations should seek to make use the best infrastructure available and play an active role in trying to advance availability of recycling and other facilities.

In addition, the availability of sustainable materials or particular items may be limited in some places which may result in slower progress.

A System-wide Approach

	Short term (by 2025)	Medium term (2025-2035)
Venues	• Put in place processes and systems to measure venue waste. • Ensure full recycling options available front and back of house in line with local infrastructure. • Ensure all equipment under direct control of the venue is sustainable and work with organisers / exhibitors to promote sustainable solutions across the board.	• Event-relevant venue waste data shared as standard.
Organisers	• Commitment to engage with suppliers on sustainable production and materials and provide resources accordingly. • Sustainable booth / production / materials protocols / standards in place and communicated widely to stakeholders. • Use renewable materials for own items (lanyards etc.).	• Sustainable booth / production / materials protocols / standards required as part of supplier contracts. • Events designed to minimise waste e.g. no single use carpets, no merchandise / swag.
Service Providers	• Commitment to engage with suppliers on sustainable production and materials. • Source sustainable materials / products where possible. • Communicate with stakeholders to remove waste appropriately (e.g. exhibitors) • Waste reduction plans in place for depots where relevant.	• All products sourced are reusable or recyclable. • Waste at depots measured as standard.

ACTION AREA 3: SOURCE FOOD SUSTAINABLY, AND ELIMINATE FOOD WASTE

Introduction

The carbon emissions generated by the production and transportation of food (including beverages), and food waste can make up a significant proportion of the carbon footprint of many events. It also makes up a significant portion of many event budgets[25]. This is particularly the case for corporate events where production elements are lower and banqueting takes on a higher priority. On a global level the food system and waste it generates accounts for 37%[26] of global GHG emissions, and the Sustainable Development Goals have a specific goal focused on food waste[27]. It is therefore important that the events industry plays its part by striving towards sustainably sourced, low carbon food and eliminating food waste as well as waste generated by containers and packaging.

There are many different models of catering provision at venues and for events. This includes on-site concessions, contract caterers, in-house caterers and many more. The responsibilities and actions will vary according to the model in place but a system-wide approach as set out in this roadmap will allow for consistent action and common progress to be made.

2050 Vision

The emissions associated with food and catering at events should be minimised through the use of seasonal, organic and, where appropriate, local products, the elimination of high carbon foods and a circular approach to food production and waste.

25 Lime Venue portfolio survey 2010

26 https://www.newscientist.com/article/2290068-food-production-emissions-make-up-more-than-a-third-of-global-total/#:~:text=Food%20production%20contributes%20around%2037,emissions%20of%20plant%2Dbased%20ones

27 SDG 12.3.1 : By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

Pathway to 2050

Baseline activities	2025	2030	2035	2040	2050
Data systems and policies in place.	Measurement happening, embedded in decision making, action underway.	Efficient planning to reduce waste, disclosure of food sustainability metrics, measurable improvement on waste.	Ongoing progress made with a significant shift towards low carbon food.	Visible move towards low carbon food and seasonal produce, significant waste reduction.	**Net Zero.**
Common agreement on how to measure GHG emissions from catering. Sustainable food sourcing policies in place across the board. Identification of high carbon foods commonly served. Food waste elimination plans in place.	Ongoing measurement and baseline for food emissions set. Sustainable food policies including food waste actions embedded in event plans and RFPs . Vegan and vegetarian options available at all events. Plans in place to reduce usage of high carbon foods such as red meat, cheese, palm oil and increase usage of low carbon foods such as nuts, soymilk etc[28]. Reusable and recyclable containers and packaging prioritised.	Where relevant, make pre-ordering food and indicating dietary restrictions the norm. Measurable progress made in sustainable sourcing of food. Reduce food waste by 50%. 50% of remaining food waste diverted. Only reusable and recyclable containers and packaging used.	Ongoing progress reported in sustainable sourcing of food. Elimination of or significant reduction in high carbon foods served at events.	Reduce food waste by 75%. 75% of remaining food waste diverted.	Emissions minimised through seasonal local produce served at all events. Foods with a high carbon footprint not served. Zero food waste through participation in circular economy including donation and composting.

Equity Considerations

Food production capacity differs depending on local context, and this might hinder the extent to which ingredients can be locally sourced and the availability of seasonal produce. The roadmap aims to encourage the spirit of purchasing from sources which are seasonal and organic, where production techniques are sustainable and, where appropriate, locally produced.

In addition, composting and recycling facilities differ across regions. Best efforts should be made to compost or recycle according to the infrastructure available.

28 For further information on low carbon foods see https://www.wbcsd.org/Programs/Food-and-Nature/Food-Land-Use/Food-Agriculture-Roadmap

A System-wide Approach

	Short term (by 2025)	Medium term (2025-2035)
Venues	• Raise awareness of food emissions reduction opportunities with catering stakeholders (concessions or contracted companies). • Sustainable food sourcing and reduction of food waste included as part of RFPs / contracts. • Composting facilities available.	• Food waste sorting, composting and donation required from all catering providers. • Practice of minimum amount contracting which results in significant food waste, to be ended. • Consider investing in shared community infrastructure to handle food waste better. • Seasonal food provided as the norm.
Organisers and service providers	• Commitment to engage with suppliers on sustainable food sourcing and elimination of food waste. • Clear guidelines for caterers in terms of food sourcing requirements with a focus on local sourcing, sustainable seafood, seasonal produce. • Include local-sourcing, in-season produce and responsible farming as procurement evaluation criteria for event catering. • Donation programmes in place for leftover food.	**Encourage caterers to:** • Put commitments in place to move towards sustainable menus. • Develop local sustainable supplier lists for cities / venues so that produce can be sourced appropriately. • Participate in initiatives such as the Sustainable Caterers Alliance or the Sustainable Restaurant Association (or similar). • Sustainable booth / production / materials protocols / standards required as part of supplier contracts. • Events designed to minimise waste e.g. no single use carpets, no merchandise / swag.

ACTION AREA 4: MOVE GOODS AND EQUIPMENT EFFICIENTLY AND TRANSITION TO ZERO EMISSIONS LOGISTICS

Introduction

The transportation of equipment and goods to events is a significant generator of carbon emissions. Although it is recognised that some types of events, particularly those with more 'built elements' such as trade shows, will have a higher logistics footprint than others, the sourcing of items locally and the transportation of them sustainably are practices that will be relevant for most events. This action area is closely linked to Action Area #2 as the less equipment and materials that are required for an event, the less transportation will be needed. This can also lead to significant cost efficiencies.

2050 Vision

The weight of materials and items which are freighted for events is significantly reduced and logistics planning is built around maximum carbon efficiency so that the emissions from logistics are minimised, using low carbon options, with any residual emissions offset in a robust way.

Pathway to 2050

Baseline activities	2025	2030	2035	2040	2050
Measurement systems and plans in place, widespread communication to stakeholders.	Measurement and action happening across events.	Measurable impact shown, new models piloted, sustainable transportation prioritised.	Ongoing progress.	New models widespread, decarbonisation of transport underway, offsetting.	**Net Zero.**
Agreed industry metrics for measuring logistics emissions for events. Company decarbonisation plans in place. Communication to exhibiting companies, contractors, suppliers on how to reduce amount of materials and make sustainable transportation choices is standard in all events.	All events measure and report carbon emissions from logistics, with baselines set. Actions underway at all events to reduce carbon emissions from logistics (e.g., efficient packaging, route optimisation, use of EVs[29], use of local suppliers, local storage etc.). Collaboration and engagement with aviation and travel industry on carbon reduction actions, such as sustainable aviation fuels.	Measurable reduction in emissions from logistics (taking into account equity considerations, different locations etc.). 'Last mile' logistics delivered by EVs or fuel efficient vehicles. Sustainable logistics models developed and being piloted by leaders across the events industry (consolidation options at events, storage at venues). Evidence of low carbon transportation options used wherever possible, such as electric vehicles, rail etc.	Low carbon transport options the norm. Sustainable logistics models widespread throughout the industry.	Sustainable logistics models in widespread use throughout the events industry. Long haul transportation to be decarbonised in line with industry pathways (aviation, shipping, rail, haulage). Industry offsetting of residual transportation emissions in line with hierarchy approach.	Net zero emissions from logistics based on reduction of carbon emissions to a minimum and offsetting of residual emissions through appropriate carbon capture / removal projects.

29 It should be noted that all use of EVs should come with appropriate end of life battery plans.

Equity Considerations

Where local suppliers may not be available, companies are encouraged to consider alternatives based on proximity and / or carbon efficiency of supply routes. Moving towards electric vehicles will be a key element of reducing the emissions from freight and logistics. However, progress in this area will be determined by the supply of EVs as well as the supporting infrastructure for EVs, which are both highly variable across the world. Similarly, while moving from aviation to land / sea modes of transportation is the ultimate goal, local context will determine the pace at which this can be achieved.

A System-wide Approach

	Short term (by 2025)	Medium term (2025-2035)
Venues	• Develop network of local suppliers to support sustainable sourcing of equipment. • Incentivise use of equipment owned by the venue to reduce need for shipping. • Provide list of local government resources regarding sustainable transport options.	• Maximize on-site storage facilities. • Install EV charging stations. • Provide low carbon onsite vehicles (forklifts etc.).
Organisers	• Build sustainable logistics requirements into contracting and RFPs (local sourcing, green transportation). • Work with venues and service providers to find ways to use common or shared materials such as carpet, AV, staging, pipe and drape.	• Work with exhibitors and sponsors to reduce the volume and weight of materials freighted to and from events. • Systems in place to analyse carbon efficiency of logistics modes of transport – ship vs rail vs air – and decisions made accordingly.
Service Providers	**General Contractors should:** • Build sustainable logistics requirements into contracting and RFPs. • Aim to source products locally where possible • Promote and invest in the use of common or shared materials. • Regularly communicate with exhibiting companies around sustainable logistics opportunities. **Logistics companies should:** • Maximise network efficiencies. • Consolidate shipments. • Develop a network of sustainable transportation providers.	• Work with exhibitors and sponsors to reduce the volume and weight of materials freighted to and from events. • Advanced route planning as the norm to facilitate consolidation of loads. • Investment in electric fleets where relevant.

ACTION AREA 5: WORK WITH AND INFLUENCE PARTNERS IN THE TRAVEL SECTOR TO REDUCE AND MITIGATE THE EMISSIONS OF TRAVEL TO EVENTS

Introduction

The emissions generated by attendee and staff travel and accommodation consistently make up the largest proportion of the carbon footprint of an event. There are some actions which can be taken by the events industry to reduce emissions generated by travel, such as partnering with sustainable providers, sharing appropriate information with delegates and building consideration of travel emissions into decisions surrounding event location. In reality the level of control events stakeholders have over this element is low. Nevertheless, so significant are the travel emissions it is critical that the events industry has a clearly defined approach to addressing the challenges they pose. Collaboration with travel industry stakeholders will be key, as will consistent collection of relevant data and, where relevant, managing the offsetting of emissions by attendees themselves, in the short to medium term at least. There is also an opportunity for event organisers to, in certain circumstances, base destination or venue selection on criteria related to minimising attendee travel.

The Travel Sector's Roadmap to Net Zero

The World Travel & Tourism Council (WTTC) has published a Roadmap to Net Zero[30] for the travel sector which summarises the pathway to Net Zero for the various industries – aviation, accommodation, cruise and tour operations. In addition, the aviation sector through IATA has published a roadmap to Net Zero which is heavily based on rapid expansion of Sustainable Aviation Fuels (SAFs) and new technologies. The hotel sector's decarbonisation pathway identifies the need for a 90% reduction in emissions by 2040 and the Sustainable Hospitality Alliance has recently published a 'Pathway to Net Zero Hospitality' which outlines how the industry can harness momentum towards Net Zero. As these industries make progress themselves, the events industry will benefit and transport emissions will reduce over time. That said, there is a significant role the events industry can play to promote sustainable transport options amongst attendees and support the travel industry in its journey through promoting and facilitating the uptake of SAFs and green hotels.

2050 Vision

By 2050 travel and accommodation to events will be as low carbon as possible, and any residual emissions will be neutralised using accredited carbon capture or equivalent.

30 https://wttc.org/Portals/0/Documents/Reports/2021/WTTC_Net_Zero_Roadmap.pdf

Pathway to 2050

Baseline activities	2025	2030	2035	2040	2050
Data collection systems in place, commitment to sustainable travel plans.	Data collection, sustainable travel plans and attendee communication in place at all events.	Industry collaborations and incentives in place, low carbon options promoted as a priority.	Ongoing progress, offsetting widely in place.	Travel industry decarbonisation progress made, sustainable options the norm.	**Net Zero.**
Regular data collection to enable calculation of travel and accommodation emissions for attendees and staff. Sustainable travel plan templates and guidance in place to support development of sustainable travel plans.	All events have a sustainable travel plan in place which includes communicating to attendees about options for sustainable local and long haul transport. Industry collaborations with travel companies to incentivise sustainable travel to events. Attendee travel and accommodation data collected for all events and footprint calculated. All partner hotels have carbon reduction plans in place. Collaboration and engagement with aviation and travel industry on carbon reduction actions, such as sustainable aviation fuels.	Majority of short-haul trips to events are by rail or sustainable transport. Attendees have the choice to offset their emissions either themselves, through airlines or through the organiser. On average, more than 75% of attendees are doing this and some organisers are choosing to cover the 'offset gap' to make the event carbon neutral. Events companies only partner with hotels with sustainability certifications.	Event travel emissions to reduce in line with, or better than, relevant industry pathways (aviation, rail, ground transport). All attendees have the choice to offset their emissions either themselves, through airlines or through the organiser. On average, more than 90% of attendees are doing this and most organisers are choosing to cover the 'offset gap' to make the event carbon neutral.	Event travel emissions to reduce in line with relevant industry pathways (aviation, rail, ground transport). Net Zero hotels prioritised for partnerships.	Minimal emissions from travel and accommodation. Any residual emissions neutralised using accredited carbon capture or equivalent.

Equity Considerations

The pace at which different companies and stakeholders can move towards Net Zero will vary according to their dependence on travel for business and the availability of viable sustainable substitutes. For example, venues located on remote islands may find business to be severely impacted if air travel is not an option.

A System-wide Approach

	Short term (by 2025)	Medium term (2025-2035)
Venues	• Work with local infrastructure / transport companies to develop and promote sustainable transport to / from the venue within destination. • Develop a sustainable transport plan.	• Provide supporting infrastructure such as EV charging points, bike storage etc. • Work with destination to provide free public transport tickets for event attendees.
Organisers	• Establish systems to collect travel / accommodation information from attendees. • Provide opportunities for attendees to offset their carbon footprint (opt in). • Promote and incentivise sustainable hotels • Promote more sustainable options such as car pooling, rail etc. for local events.	• Provide opt out for attendee offsetting across most events and offset remaining travel and accommodation emissions. • Embed sustainable transport options / proximity to audience into decisions regarding event location to minimise travel emissions. • Where possible, promote only sustainability accredited or net zero hotels to delegates. • Provide hybrid options for remote attendance where possible. • Participation in industry-wide initiatives for green transport – e.g. Sustainable Aviation Fuels.
Service Providers	• Source crew / staff locally to reduce travel emissions.	

CHAPTER 5: THE ROADMAP IN ACTION

In order to translate the concepts and frameworks set out in this Roadmap, companies can consider a step by step approach to put them into action. Further information is available in the Quick Guide to Getting Started[31] but as initial steps we suggest the following approach:

1. Identify the type of entity your company is (or combination)

The first step is identifying the type of entity your company is, since the Roadmap is structured in this way. The suggested responsibilities and examples of companies which would fall under each type are listed in the introduction. Where companies are a combination, they should apply information relevant to both categories.

Regardless of type, all industry players should keep an eye on the industry-wide roadmap which indicates the priorities at each milestone year. All players should aim to meet these through the steps outlined in each section.

2. Define your Scope 1, 2 and 3 boundaries

Use the guidance set out in Section 1 of this Roadmap and the GHG Protocol to define the Scope 1, 2 and 3 boundaries for your organisation.

Definition of emission scopes:

- Scope 1 – Direct GHG emissions that occur from sources owned or controlled by the organisation.
- Scope 2 – Indirect GHG emissions from generation of purchased electricity consumed by the organisation.
- Scope 3 – Other indirect GHG emissions that occur as a consequence of the activities of the organisation, but occur from sources not owned or controlled by the organisation.

3. Identify what you are measuring and gaps

The pathways for all action areas prioritise measuring and tracking each company's footprint. Measuring the footprint is essential to knowing what needs to be improved.

Companies should first take stock of the information they already have, such as energy consumption stated on utility bills, and identify data gaps for parts of the business operation whose footprint is unclear. In general, the more granular the information the better as it makes it clearer who or what can have the most direct impact to reducing the company's footprint.

4. Work out how to fill the gaps in data availability

After identifying the data gaps, companies should work out a plan to fill those gaps. For example, companies can

- Put in place measuring tools.
- Work with stakeholders such as senior management and upstream suppliers or downstream users.
- Use coefficients to estimate the data gaps where they are impossible to accurately fill.

31 Available at https://netzerocarbonevents.org/wp/wp-content/uploads/Net-Zero-Carbon-Events-Practical-Guide-February-2022.pdf

5. Establish your tracking systems and baseline

It is necessary to put in place systems to measure and track key emissions sources and then collect that data in order to establish a baseline.

Companies can choose their own baseline year but should bear in mind:

- How representative that year is of operations (for example, 2020 and 2021 data will be significantly skewed due to the cancellation of events due to the Covid-19 pandemic; or if it was immediately prior to a significant change in the size of the company due to acquisition or new events).
- The availability of robust data.

6. Define your milestones based on the Priority Action Areas

Using the pathways in the action areas as a guide, customise a similar roadmap for your company which reflects the equity considerations which may apply to your company. Use this roadmap to set quantifiable and easily verifiable targets which can complement your company's roadmap.

7. Establish a 'net zero' culture in your organisation

Communicate the net zero goal within your organisation and to external stakeholders within your company's sphere of influence. Getting individuals to understand what Net Zero is and why it is important is crucial to getting buy-in for any net zero targets set. Be transparent with targets, potential challenges and plans for getting to Net Zero so that all stakeholders are clear of the path ahead.

8. Collaborate with your key partners

Work closely with other partners in the events industry – organisers, venues, service providers as well as destinations and exhibiting companies – who are in your ecosystem in order to align around goals and priorities, and drive change in a co-ordinated way.

9. Engage in industry-wide initiatives to address the Priority Action Areas

The Priority Action Areas are where the industry needs to work collaboratively in order to move towards Net Zero. Where possible companies should engage in industry initiatives to address them, for example streamlining food donation criteria and creating platforms for players in the events industry worldwide to share logistics and minimise one-time-use items. The Net Zero Carbon Events initiative will provide a framework for taking the action areas forward.

Figure 1.5.1 shows a hypothetical example of how using the Roadmap may play out in a corporate event.

Example decarbonisation pathway for a corporate event

Annual meeting of the company's country management teams, 1000 delegates from locations around the world, 3 day event with F&B and overnight stays, includes exhibition of latest products and suppliers, venue is a hotel conference centre in a hub city in Europe and the same venue is used each year.

	2025	2030	2035	2040
Action Area 1: Energy	Venue puts sub metering in place so that the energy consumption of the event can be measured.	Venue completes renovation including energy efficiency measures, such as a new efficient HVAC system.	RECs purchased so event is 100% renewables.	Installation of on-site solar panels (provide 20% of energy). RECs purchased so event is 100% renewables.
Action Area 2: production and waste	All suppliers required to have a carbon reduction plan in place. Venue carpet used instead of bespoke carpet. Foam board signs replaced with sustainable alternative. 50% of waste is recycled.	All plastic items removed from event . Badges and lanyards replaced with digital alternatives. All exhibitor stands are constructed with sustainably sourced material. 75% of waste is recycled.	Gifts and promotional materials are replaced with digital alternatives. All exhibitor stands use existing lightweight sustainable structures rather than single use constructions. 100% of waste is recycled (diverted from landfill).	
Action Area 3: Food and food waste	Main dinner menu showcases local and seasonal produce. Donation programme in place for leftover food.	At least one course of each meal served is vegetarian. Composting facilities on site.	High carbon food items are eliminated from menus. 75% of food waste composted or donated.	Most food served is local and seasonal, and low carbon. 90% off food waste composted or donated.
Action Area 4: Freight and logistics	Elimination of carpet (see above) reduces freight requirement.	All items sourced within country to allow for land based transportation.	Agreement with transport company to use 50% EV fleet.	Transport fleet 85% EV. Significant reduction in materials to be transported (see above).
Action Area 5: Travel and accommodation	All Europe based staff travel by road or rail. Flights are optimised for environmental efficiency (routes, aircraft etc.). Flight and accommodation footprints are measured.	Partner hotels all have a sustainability certification and / or net zero commitment. Flight and accommodation footprints are offset using robust and accredited offsetting scheme.	Expansion of Sustainable Aviation Fuel network means flight emissions reduce by 20%. Hotel industry action and grid decarbonisation means accommodation footprint reduces by 25%. Offsets applied.	

Figure 1.5.1 Example of decarbonisation pathway of a hypothetical corporate event

Net Zero Pathway of the German Trade Fair Industry

The German Trade Fair Industry, under the auspices of the trade body AUMA has published its own sustainability pathway to 2025 and has committed to implement the following measures:

Climate neutrality by 2040
- We will steadily reduce our carbon footprint.
- The German trade fair industry will be climate neutral by 2040.

Sustainability will become part of tender processes
- We firmly anchor sustainability in our companies and in our collaboration with our industry partners.
- As of 2023 the German trade fair industry will make product- and service-specific sustainability criteria part of their tender processes.

100 percent green power until 2025
- We are pushing the expansion of green energy and we are consequently working on substituting fossil energy sources for district heating and renewable energy. We are defining specific energy saving goals for our businesses.
- By 2025 the German trade fair industry will use 100 percent green power.

Exhibition stand construction
- Exhibition stands are flagships of exhibiting companies serving to present innovations and brand worlds.
- The German trade fair industry will develop a portfolio for sustainable stand construction and will actively offer this portfolio to exhibitors. Additionally, the German trade fair industry will create an incentive scheme for exhibitors to opt for sustainable and multiple-use trade fair stands.

Water
- We are using water as economically as possible, and we are utilising up-to-date water saving technology.
- We are expanding the green areas of our premises and buildings in relation to usable open space, particularly to save rainwater and to improve air quality.

Waste
- We want to avoid waste. Therefore, we explicitly support the efficient use of commodities as well as the utilisation of reusable material.
- The German trade fair industry is committed to consequently reduce the amount of waste.

Logistics
- We are steadily working on improving the management and bundling of trade fair-related logistics traffic. We are using intelligent logistic systems for optimising this traffic.
- Additionally, the German trade fair industry is pursuing the decarbonisation of its site-related carpools.

Arrival and Departure
- Together with our partners, especially with public transportation companies, we will create offers for low emission or carbon neutral travel to and from our exhibition sites.
- The German trade fair industry will expand the onsite facilities for charging electric vehicles.

Catering
- We want to expand catering with regional, seasonal, and organic produce for our customers as well as for our employees.
- The German trade fair industry agrees with its catering business partners for related goals by 2023.
- The German trade fair industry is committed to avoid food waste. The industry sector will therefore reach an agreement with catering businesses / catering partners for a continuous evaluation of customised offers of food and drink.

Figure 1.5.2 Example of Net Zero Commitment from AUMA, Association of the German Trade Fair Industry

PART 2:

GUIDELINES & RESOURCES

SECTION 1: FRAMEWORK FOR SCOPE 1, 2 AND 3 BOUNDARIES FOR THE EVENTS INDUSTRY

The GHG Protocol Corporate Accounting and Reporting Standard[32], which is also applicable to non-corporate organisations, provides clear guidance on how to set Scope 1 and 2 boundaries at company or organisation level. The table below gives an outline of how different entities within the events industry may define their Scope 1, 2 and 3 emissions (with further detail on Scope 3 in the following section).

Type	Scope 1	Scope 2	Scope 3
Organiser	Emissions from any on-site energy (including natural gas) generated at company offices. Emissions from any company-owned vehicles (e.g. staff transport).	Purchased electricity for company offices.	Company business travel. Employee commuting. Waste generated at company offices. Other upstream and downstream emissions as identified in the GHG Protocol[33] (investments, leased assets etc.). Other event related emissions (see next section). Company business travel. Employee commuting. Waste generated at company offices. Other upstream and downstream emissions as identified in the GHG Protocol (investments, leased assets etc.). Other event related emissions (see next section).
Venue	Emissions from any on-site energy (including natural gas) generated at company offices and venue. Emissions from any company-owned vehicles (e.g. staff transport, forklift trucks etc.).	Purchased electricity for company offices and venue. Purchased heating and cooling. Purchased electricity for company offices and venue. Purchased heating and cooling.	Company Business travel. Employee commuting. Waste generated at company offices. Other upstream and downstream emissions as identified in the GHG Protocol (investments, leased assets etc.). Other event related emissions (see next section).
Service Provider	Emissions from any on-site energy (including natural gas) generated at company offices or warehouses. Emissions from any company-owned vehicles (e.g. staff transport, freight vehicles, forklift trucks etc.).	Purchased electricity for company offices and warehouses.	Company business travel. Employee commuting. Waste generated at company offices and warehouses. Other upstream and downstream emissions as identified in the GHG Protocol (investments, leased assets etc.). Other event related emissions (see next section).

Table 2.1.1 Overview of Scopes 1, 2 and 3 for events companies

32 https://ghgprotocol.org/corporate-standard

33 For further information on Scope 3 emissions please see GHG Protocol Corporate standard

2.1.2 EVENT RELATED SCOPE 3 EMISSIONS

Any event has a carbon footprint and generates various carbon emissions, regardless of how it is allocated or classified. The purpose of this Roadmap is to clarify the interdependencies between stakeholders and the ability of the industry to influence different emissions sources, so that events industry organisations can set their own net zero pathways with a consistent approach, and ultimately drive events themselves towards Net Zero.

This section provides guidance to event companies who wish to establish a Scope 3 boundary. While each event is different and each company is different, the framework below aims to present basic principles to be followed so that there is a level of consistency in terms of how companies approach their Scope 3 boundary.

It is, of course, up to each organisation to determine its boundaries, however the table below represents the minimum recommended boundary to meet the likely stakeholder expectations around reporting and responsibility. An organisation can of course choose to take responsibility for a wider set of emissions.

Note that in this framework the 'exhibitor or sponsor' has been included. This is because in many cases it is the exhibiting or sponsoring company that has most influence over certain types of emissions. It is intended that this guidance can help organisers, venues and service providers who are liaising with exhibitors and sponsors raise awareness of their role in reducing these emissions.

The following general principle has been applied:

- As the originator of an event, the organiser includes the spectrum of emissions within their Scope 3 boundary.
- Where an entity makes a purchasing decision or places a production order for a given item or material, it should include both the embodied carbon and downstream waste generated by that item within its Scope 3 boundary.

Emissions source	Organiser	Venue	Service Provider	Exhibitor	Comments
On-site venue energy	Included	Included (Scope 1)	Excluded	Included	Event related only – if organiser owns venue then they would include in Scope 1 and 2
Purchased energy in venue, heating & cooling	Included	Included (Scope 2)	Excluded	Included	
Embodied carbon in venue building[34]	Excluded	Included[35]	Excluded	Excluded	
T&D losses[36]	Excluded	Included	Excluded	Excluded	
Water	Included	Included	Excluded	Excluded	
Space design and production (stands / booths, carpets, signage, AV, Furniture etc.)	Included	Excluded (unless purchased directly by venue)	Included (only when items procured by company)	Included (when purchased directly from supplier)	Embodied carbon of production materials
Paper (site guides, newspapers etc.)	Included	Excluded[37]	Excluded	Excluded	
Promotional material / merchandise	Included (excluding merchandise related directly to exhibitors)	Excluded	Excluded	Included (when item is purchased)	

Continue >

34 For further information please see definition of Embodied Carbon in Glossary (Appendix I)
35 It is recognised that quantification of embodied carbon in buildings remains a challenge, as such venues may choose to defer the inclusion of this element until better data is available, or 2030, which ever is sooner
36 Transmission & distribution loses in the electricity sector occur when the amount of electricity generated is greater than the amount of electricity delivered to end-users.
37 Paper used by the venue in the course of day to day management / offices would be included but paper generated as part of the event organisation / delivery should be out of scope for the venue.

Emissions source	Organiser	Venue	Service Provider	Exhibitor	Comments
Intangible communications (digital activities, livestream etc. includes emissions from data transfer, serves etc.)	Included	Excluded[38]	Included (if providing live stream / virtual show etc.)	Excluded	
Production and transportation of food and drink	Included	Included (when purchaser of catering)	Included (when purchaser of catering)	Included (when purchased directly from supplier)	If entity is making purchasing decision then catering should be included in Scope 3. Only include catering within the event.
Freight transport	Included	Excluded	Included (when controlled / procured)	Included	
Attendee travel (non staff) to event	Currently[39] excluded (but should be reported) unless transportation tickets purchased by company	Excluded	Excluded	Excluded	
Staff[40] travel to event	Included (own staff only)	Included (own staff only)	Included (own staff only)	Included (own staff only)	
Attendee local transport in destination	Included	(Scope 1 if owned vehicles)	Excluded	Excluded	
Attendee accommodation (non staff)	Currently[41] excluded (but should be reported) unless rooms booked by company	Excluded	Excluded	Excluded	
Staff[42] accommodation	Included (own staff only)	Included (own staff only)	Included (own staff only)	Included (own staff only)	
Venue waste[43]	Included	Included	Excluded	Excluded	
Production waste[44]	Included	Excluded	Included (when controlled)	Included (when controlled)	Service provider or exhibitor should include in scope 3 if they are responsible for removal of waste
Food waste	Included	Included (when purchaser of catering)	Included (when purchaser of catering)	Included (when purchased directly from caterer)	If venue, service provider or exhibitor is making purchasing decision then food waste should be included in Scope 3

Table 2.1.2 Scope 3 boundary for events companies

38 Intangible comms used by the venue in the course of day to day management / offices would be included but intangible comms generated as part of the event organisation / delivery should be out of scope for the venue
39 To be reviewed in 2 years' time (2024/5)
40 Staff includes contractors and freelancers where the company is hiring them directly
41 To be reviewed in 2 years time (2024/5)
42 Staff includes contractors and freelancers where the company is hiring them directly
43 General 'floor' waste handled by the venue
44 Waste resulting from booths, stands, build etc.

2.1.3 PRIORITISING SCOPE 3 EMISSIONS

The table in the previous section lays out the framework for companies to decide whether different emissions types may fall within their Scope 3 boundary in principle. However, as per the GHG Protocol there is flexibility for a company to assess each emissions source according to minimum boundary criteria in order to ascertain whether they should be included in the final inventory. Table 2.1.3 shows these criteria with some examples from the events industry. For information on an events-industry prioritisation of emissions please see Appendix E.

Criteria	Description	Events application
Size	They contribute significantly to the company's total anticipated scope 3 emissions.	Logistics can be a significant part of a service provider's scope 3.
Influence	There are potential emissions reductions that could be undertaken or influenced by the company	Service providers can influence logistics routes to reduce emissions.
Risk	They contribute to the company's risk exposure.	Waste targets imposed, such as those in the EU which require significant reductions to be shown which in turn impacts EU venues.
Stakeholders	They are deemed critical by key stakeholders.	There is an expectation from stakeholders that the events industry takes action to eliminate waste
Outsourcing	They are outsourced activities previously performed in-house, or typically performed in-house by other companies in the sector.	A General Service Contractor has outsourced its logistics fleet.
Sector Guidance	They have been identified as significant by sector-specific guidance.	
Other	They meet any additional criteria for determining relevance developed by the company or industry sector.	In the case of the events industry complexity regarding measurement and apportionment should be a consideration.

Table 2.1.3 Materiality Criteria for Scope 3 Source: GHG Protocol

As companies establish their own Scope 3 boundary, they should assess the relevant Scope 3 emissions sources through this lens and determine relevance based on the type of events and level of control the company has in relation to them.

2.1.4 EXAMPLES

The diagrams below show what Scope 1, 2 and 3 boundaries might look like for different stakeholders.

EVENT VENUE
Carbon footprint

Scope 1	Scope 2	Scope 3 Company	Scope 3 Event
On-site fuel consumed. Company owned vehicles.	Purchased electricity.	Business travel. Employee commuting. Waste.	Food and beverage (when responsible for catering). Food waste (when responsible for catering). Venue waste.

EVENT ORGANISER
Carbon footprint

Scope 1	Scope 2	Scope 3 Company	Scope 3 Event
On-site fuel consumed at corporate offices. Company owned vehicles.	Purchased electricity at corporate offices.	Business travel. Employee commuting. Waste from corporate offices.	Venue energy. Embodied carbon in stand, carpet, signage and other production. Food and beverage Freight. Intangible communications In destination transport for participants.

SERVICE PROVIDER
Carbon footprint

Scope 1	Scope 2	Scope 3 Company	Scope 3 Event
On-site fuel consumed at corporate offices. Company owned vehicles.	Purchased electricity at corporate offices.	Business travel. Employee commuting. Waste from corporate offices	Embodied carbon in stand, carpet, signage and other production. Food and beverage Freight. Intangible communications Food waste. Production waste.

SECTION 2: FRAMEWORK FOR CONSISTENT METRICS FOR MEASURING THE CARBON FOOTPRINT OF EVENTS

Collecting consistent data across multiple stakeholders and events is one of the most significant challenges for the industry as it embarks on its net zero journey. In order to simplify the challenge, 21 basic data collection items have been identified. These represent the elements that all events should strive to collect, if they are relevant. Additional data points are also identified, where more granular data is available. The data points were identified following a review of existing tools, methodologies and in-house company approaches, and form the fundamental basis of the carbon footprint of events. Further work to provide methodologies for measurement of consistent metrics will be undertaken as Phase 3 of the Net Zero Carbon Events Initiative.

Category	Basic Data	Data to be provided by
Event details	1. Number of event days (open to public). 2. Number of event days (mounting / dismounting). 3. Space rented by the event (net and gross, in m2 or square foot) – distinguish indoor and outdoor if not all indoor. 4. Total number of participants including all attendees and staff.	Organiser
Energy[45]	5. Each energy type (gas, diesel, biofuel etc.) usage for the event (venue only) reported in kwh. 6. Total purchased electricity for the event (venue only) (kwh). 7. % of purchased electricity which is from renewable sources.	Venue
Water	8. Amount of water consumed during the event (gallons or litres).	Venue
Food	9. Number of meals catered for.	Venue / organiser / service provider (depending on who is contracting the catering)
Production	1. % of stands which are modular / reusable.	Service provider
Waste	11. Total Waste (tons). 12. Total Waste recycled / donated. 13. % of waste diverted from landfill.	Venue[46]
Logistics	14. Volume / mass and distance transported by air (km). 15. Volume / mass and distance transported by rail (km). 16. Volume / mass and distance transported by road (km).	Service provider and / or data collected by service provider / organiser from exhibitors
Attendee travel and accommodation	17. Flights taken and departure points. 18. Road trips taken and departure points. 19. Rail trips taken and departure points. 20. No of nights in each type of hotel (star rating). 21. % of attendees offsetting travel.	Attendees

45 A methodology to ensure a consistent approach to apportioning energy and water consumption to events within venues is planned by the Net Zero Carbon Events initiative and should be available in late 2022 / early 2023.

46 It is recognised that different waste streams exist and are not always within the control of the venue. However, venues are encouraged to gather data on all waste streams, working with different partners when relevant.

SECTION 3: SETTING A BASELINE

The Net Zero Carbon Events Pledge refers to the ultimate goal of Net Zero by 2050. However, in order to ensure that sufficient action is taken in the short term, companies should also commit to significant reductions to the Scope 1 and 2 emissions by 2030, as set out in the Paris Agreement. While the Paris Agreement states that there should be a reduction in global emissions of 50% from a 2018 base year, there is flexibility for companies and sectors to set their own. As a general rule, the base year will be the first year when robust data is available.

The Greenhouse Gas Protocol[47] provides the following guidance:

Companies shall choose and report a base year for which verifiable emissions data are available and specify their reasons for choosing that particular year. Most companies select a single year as their base year. However, it is also possible to choose an average of annual emissions over several consecutive years. For example, the U.K. ETS specifies an average of 1998–2000 emissions as the reference point for tracking reductions. A multi-year average may help smooth out unusual fluctuations in GHG emissions that would make a single year's data unrepresentative of the company's typical emissions profile.

In addition the Science Based Targets initiative[48] identifies three important considerations for selecting a base year:

1. Verifiable data on scope 1, 2, and 3 emissions should exist for the base year. It is recommended that companies choose the most recent year for which data are available as the base year.
2. The base year should be representative of a company's typical GHG profile. Companies can assess representativeness by comparing inventories and business activity levels over time. If it is difficult to identify a single year that is representative, companies should instead average GHG data over multiple consecutive years to form a more representative base period that smooths out unusual fluctuations in emissions. For example, atypical weather conditions might distort the emissions in a given year (say, 2017) for an agricultural producer. In response, the company could average emissions over 2016, 2017 and 2018. Its target would then be phrased as: "Company X commits to reduce absolute scope 1 and 2 GHG emissions 40% by 2025 from a 2016-2018 base period."
3. The base year should be chosen such that the target has sufficient forward-looking ambition. While companies deserve credit for past progress, the initiative's objective is to promote action that has not yet been accomplished and to push companies that have already achieved progress to go beyond current ambition. The SBTi uses the year the target is submitted to the initiative (or the most recent completed GHG inventory) to assess forward looking ambition.

Companies may choose to have different baselines initially for different emissions sources based on available data. For example, if energy data is readily available a baseline may be set which is earlier than for embodied carbon, for which data is currently scarce.

Companies are advised to determine their base year according to data availability and taking into account the above considerations.

47 https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf
48 https://sciencebasedtargets.org/resources/files/SBTi-Corporate-Manual.pdf

SECTION 4: REPORTING TEMPLATE

The Net Zero Carbon Events Initiative invites all participating companies to complete this annual reporting template by 30 June 2023, with data and information corresponding to 2022. The aim of the template is to collect consistent information across all supporters so that we can monitor progress, identify common challenges and highlight learnings and best practices. Where emissions or reduction data is available it should be shared but it is recognised that for 2022 reporting this may not be available. All information will be confidential and only shared in aggregated, anonymised formats.

Section 1: Your company

- Company Name
- Contact Name
- Contact Email
- Company Type: venue, organiser, service provider (please specify field: catering, etc.)
- Country HQ location
- No of attendees participating in your events / venues annually
- Boundary of company covered by Pledge (if relevant)[49]

Section 2: Pledge commitments

- Have you signed the Net Zero Carbon Events Pledge?
- Do you have a Net Zero plan in place?
  a. Yes
  b. No, but in progress and it will be in place by end of 2023
  c. No, but in progress and will be in place after end of 2023
  d. No, have not started yet

If yes:

- Please outline your Scope 1, 2 and 3 boundaries.
- Please indicate your baseline year (if available)
- Please indicate any interim targets you have set (if relevant)
- Please state how you have communicated your involvement in NZCE and / or signing of the Pledge / Net Zero commitment.
- Please list any industry collaborations, apart from NZCE, that you are involved in

Section 3: Measurement

- What are your Scope 1, 2[50], 3 carbon emissions for 2022 (January to December[51])?
- What progress has been made since the baseline?

Section 4: Value Chain

- Are questions related to carbon reduction or net zero embedded in your procurement process?
- How do you communicate about carbon reduction / Net Zero with suppliers?
- How do you communicate about carbon reduction / Net Zero with customers?

49 The Pledge commitment should cover all company activities. However, if there are legitimate complexities around geography, subsidiaries, co-ownership then these boundaries should be transparently reported.
50 Please indicate if you are reporting market-based or location-based emissions.
51 If your company uses a different reporting calendar please state the dates to which your data relates.

Section 5: Progress in Action Areas

Please state your current and planned activities in each of the areas below, where relevant.

	Current actions	Planned actions	Comments
Action Area 1: Power events efficiently with clean, renewable energy			
Action Area 2: Redesign events to utilise sustainable materials and be waste free			
Action Area 3: Source food sustainably, and eliminate food waste			
Action Area 4: Move goods and equipment efficiently and transition to zero emissions logistics			
Action Area 5: Work with and influence partners in the travel sector to reduce and mitigate the emissions of travel to events			

Section 6: Additional Information

Please provide any additional comments or information you would like to share.

SECTION 5: A CARBON OFFSETTING STRATEGY FOR THE EVENTS INDUSTRY

Carbon offsetting in itself is not the answer to Net Zero. However, as an interim measure carbon offsetting is a legitimate strategy to mitigate the impact of carbon emissions and can help companies, and events, achieve 'carbon neutral' status. This Roadmap provides an outline of how carbon offsetting can be used effectively and sets out a hierarchical approach which, if adopted throughout the industry, would streamline offsetting activities and build significant scale in terms of positive impact and the narrative surrounding it. It should be noted that any carbon offsetting activity should be accompanied by a clear decarbonisation plan.

2.5.1 ENSURING THAT QUALITY CARBON OFFSETS ARE PURCHASED

It should always be noted that carbon offsetting is a last resort but if you have to do it then make sure that it:

- Adheres to the Oxford Principles of carbon offsetting[52].
- Fulfils the basic attributes of good carbon offsets.

The Oxford Principles for Net Zero Aligned Carbon Offsetting were published in 2020 and outline how offsetting needs to be approached to ensure it helps achieve a net zero society. The four basic principles are:

1. Cut emissions, use high quality offsets, and regularly revise offsetting strategy as best practice evolves.
2. Shift to carbon removal offsetting (i.e. offsets which result in the removal of carbon from the atmosphere as opposed to offsets which result in emissions reductions).
3. Shift to long-lived storage (i.e. where carbon is stored permanently with minimal risk of re-release).
4. Support the development of net zero aligned offsetting (i.e. creating demand for carbon removal and long-lived storage, promoting the principles and supporting the development and restoration of ecosystems).

The offset used should meet a minimum threshold of quality. The table below sets out the basic attributes of good carbon offsetting.

Verified	Offsets should be validated and certified by credible third-party organisations and standards. Examples of such organisations: UNFCCC, VCS (Verified Carbon Standard), Carbon Trust Standard; more examples on Carbon Disclosure Project's (CDP) website.
Minimised Forward-selling	The time gap between the purchase of offset and the execution of the action to remove carbon or reduce emissions should be minimised.
Accurately accounted	Offset providers should convert the warming impact of other GHG, like methane, into CO2 terms according to their actual warming impact.
Additional	Offsets should be additional, meaning they represent an emission reduction or carbon removal that would not have taken place if not for the offset activity.
Permanence	Permanence refers to how long a greenhouse gas stays out of the atmosphere. Ideally it should be kept out of the atmosphere forever. Where there is a risk of reversal, e.g. where reforested or afforested plots are destroyed and carbon is released, it must be acknowledged and accounted for in the offset plan.
Co-beneficial	Besides being environmentally beneficial, offset projects must minimally not affect the local population, and ideally should offer social benefit to them. Offset projects should also comply with local jurisdiction.

Source: Adapted from Net Zero Methodology for Hotels, Greenview et al, 2021

52 https://www.smithschool.ox.ac.uk/sites/default/files/2022-01/Oxford-Offsetting-Principles-2020.pdf

2.5.2 AN INDUSTRY-WIDE APPROACH TO CARBON OFFSETTING

Carbon offsetting will be a reality for the events industry in the short term at least. Given the size of some of the value chain emissions sources, particularly those associated with transportation of people and items, offsetting is a considerable undertaking for event organisers, venues and service providers. While multiple counting of emissions is an inevitable part of GHG calculations when looking at a group of companies or an industry as a whole, there is an opportunity for the events industry to agree on a hierarchical approach to offsetting some of the key emissions sources in order to share the burden across event stakeholders.

Using the premise that those closest to the creation of the emissions should have primary responsibility for offsetting (as they will largely also have the primary responsibility for reducing emissions and thus reducing the need for offsetting) the following hierarchy is proposed:

1. The original supplier [outside events industry [e.g. airline, hotel, food supplier].
2. The events entity that buys it from the original producer [attendee, exhibiting company, supplier, venue, organiser].
3. Any subsequent purchaser(s) in the chain.
4. Entity with overall financial control of the event [usually organiser].

For example:

In the case of emissions caused by attendee travel to the event:

1. Airline or rail company.
2. Travel intermediary (travel agency, corporate travel management company etc.).
3. Attendee or company they represent.
4. Event organiser.

In the case of emissions caused by freight logistics:

1. Airline, rail or haulage company.
2. Entity the items belong to (service provider, exhibitor, sponsor).
3. Entity responsible for procuring the transport – if different from no 2 (service provider).
4. Event organiser.

This approach can be deployed by an organiser wishing to offset emissions in order to obtain carbon neutral status.

SECTION 6: ENGAGING WITH DESTINATIONS AND ATTENDEES

The Roadmap takes as its focus the stakeholders who are directly involved in the operation of an event – venues, organisers and service providers. However, as stated in the introduction, other stakeholders such as destinations – which include local governments, conference and events bureaux, destination management and / or marketing organisations among others – as well as attendees (which include exhibiting companies and sponsors) also have a crucial role to play in order for the events industry to achieve Net Zero. This will be explored more in further iterations of the Roadmap. In the meantime this section gives some overarching guidance on the roles that destinations and exhibiting companies can play in decarbonisation in general and with specific reference to the Action Areas.

2.6.1 DESTINATIONS

Destinations provide the backdrop to an event. More often than not, the infrastructure which supports an event 'outside the venue', such as local transportation, waste and recycling services, falls within the purview of the 'destination'. In addition, convention bureaux play a key role in attracting events to a destination. Ensuring that decarbonisation is embedded into the various decisions taken by these entities is key to decarbonisation of the events industry.

On a general level, the key questions destinations should be asked are:

- Does the destination have its own net zero or decarbonisation goal in place? If so is there a specific plan or target for the events industry or related industries?
- How does the destination work with the events industry on decarbonisation and wider sustainability issues? Is there a sustainable events committee or equivalent?
- What decarbonisation / sustainability requirements are in place for events taking place in the destination?
- What infrastructure is in place which will support the sustainability of the event – electric vehicles, EV charging stations, waste management facilities, local food suppliers etc? How can this be integrated into the event planning?
- What metrics and methodologies are they using (if any) to measure sustainability impacts? How do they relate to those used by other stakeholders?
- Are there any local offsetting opportunities that could be supported by events organisers?

Action Area	Destination opportunities
Action Area 1: Power events efficiently with clean, renewable energy	Tax rebates or incentive programmes for efficiency investments that venues could benefit from.
Action Area 2: Redesign events to utilise sustainable materials and be waste free	Waste infrastructure to support recycling. Connection to local communities for food and other donations. Connection to local suppliers.
Action Area 3: Source food sustainably, and eliminate food waste	Connection to and development of local producers and food suppliers.
Action Area 4: Move goods and equipment efficiently and transition to zero emissions logistics	Low carbon transportation options.
Action Area 5: Work with and influence partners in the travel sector to reduce and mitigate the emissions of travel to events	Good and low carbon public transport systems within the destination and particularly to link the event venue to local infrastructure. Destination level sustainable tourism programme or certification, particularly with relation to hotels.

2.6.2 ATTENDEES

Attendees include visitors, exhibiting companies and sponsors. It is important to develop strategies to engage with all attendees on sustainability; however the focus here has been developed for exhibiting companies and sponsors. For many events, the ability for companies to exhibit and promote or sell their products and services is fundamental to the success of the event. While models vary according to event and event organiser, broadly speaking the exhibiting companies and sponsors are responsible for sourcing and delivering their exhibits. Given the temporary nature of events, often this can involve a significant amount of 'material' being brought on site and removed. While organisers and general service contractors should have plans and actions in place to engage exhibitors and their suppliers, some key elements should be considered:

- Does the company have its own sustainability or net zero goals? If so what are they and are there any specific targets for events attendance / participation? How can they relate to events?
- Does the company embed sustainability criteria in its procurement processes as they relate to events materials, travel and other elements?
- Does the company take sustainability into account when determining the merchandise, marketing material and other 'take aways' from their participation in the event?

Action Area	Destination opportunities
Action Area 1: Power events efficiently with clean, renewable energy	Minimise energy consumption on stands through use of LEDs and other low carbon options.
Action Area 2: Redesign events to utilise sustainable materials and be waste free	Use sustainable materials, and recycle / upcycle them. Reduce materials where possible, such as eliminating carpets on stands. Encourage suppliers to deal with waste appropriately. Monitor and measure quantities of materials and waste. Avoid the use of single use items. Reduce merchandise to a minimum or use sustainable materials.
Action Area 3: Source food sustainably, and eliminate food waste	Where catering is sourced individually, make sure food is low carbon, seasonal and / or local. Make sure caterers deal with food waste appropriately. Provide data to the organiser if requested.
Action Area 4: Move goods and equipment efficiently and transition to zero emissions logistics	Use bulk transportation options, and reduce the amount to be transported. Look for local storage options. Build decarbonisation / Net Zero into contracts with suppliers. Provide data to the organiser if requested.
Action Area 5: Work with and influence partners in the travel sector to reduce and mitigate the emissions of travel to events	Use green transport options to get staff to the event, offset your emissions and communicate this to the organiser.

PART 3:

FURTHER INFORMATION

APPENDIX A: NET ZERO CARBON EMISSIONS PLEDGE

Following the best available science on the impacts of climate change, we acknowledge that there is an urgent need to accelerate the transition towards global net zero emissions, and for the events industry to play its part in helping to deliver the goals of the Paris Agreement and ensuring a just transition.

Recognising that the events industry is comprised of a complex and fragmented mix of stakeholders from across the globe, we acknowledge that, while individual companies and organisations may take specific actions to minimise their carbon impact, to drive meaningful progress **a system-wide approach is also needed**.

In this context, [ORGANISATION NAME] commits to support the goal of net zero greenhouse gas (GHG) emissions by 2050, in line with global efforts set out by the Paris Agreement to limit warming to 1.5°C and reduce total global GHG emissions by 50% by 2030, and to actively promote and advocate for industry efforts throughout the value chain.

In pursuit of this aim, [ORGANISATION NAME] undertakes to:

1. **Before the end of 2023, publish the organisation's pathway to achieve Net Zero by 2050 at the latest, with an interim target in line with the Paris Agreement's requirement to reduce global GHG emissions by 50% by 2030:**
    - Identify and prioritise actions to reduce emissions [such as energy management, water conservation, materials management, food and beverage waste reduction, housekeeping initiatives, sustainable procurement, stakeholder management and employee engagement] and set goals accordingly.
    - Address residual emissions, once they've been minimised, through the purchase of credible carbon offsets with efforts to transition to those that represent carbon removal / capture.
    - Contribute resources, time and / or expertise to develop a collective low carbon roadmap for the events industry.
2. **Collaborate with partners, suppliers and customers to drive change across the value chain:**
    - Publicly announce the signing of this Pledge and actively promote and advocate for net zero across the industry.
    - Advocate for carbon reductions and perform due diligence as part of procurement processes.
    - Promote and participate in initiatives within and beyond the events industry to raise awareness of synergies, find solutions and design collaborative opportunities for reducing carbon emissions.
3. **Measure and track our Scope 1,2 and 3 GHG emissions according to industry best practice:**
    - Embed carbon measurement systems into operations.
    - Identify and share appropriate metrics and methodologies for measurement.
    - Contribute data to industry initiatives to enhance common methodologies and metrics.
4. **Report on our progress at least every two years:**
    - Publish our key metrics and progress.
    - Share best practices and lessons learned.
    - Support collective industry-wide reporting and communications.

APPENDIX B: ALIGNMENT WITH OTHER FRAMEWORKS

B.1. RACE TO ZERO

Race To Zero is a global campaign led by the High-Level Climate Champions for Climate Action to rally leadership and support from businesses, cities, regions and investors for a healthy, resilient, zero carbon recovery that prevents future threats, creates decent jobs, and unlocks inclusive, sustainable growth. All members are committed to the same overarching goal: reducing emissions across all scopes swiftly and fairly in line with the Paris Agreement, with transparent action plans and robust near-term targets. All actors must meet stringent criteria which will bring them to the starting line to credibly race to zero emissions.

The most recent Race to Zero criteria[53], launched in June 2022, cover 5 areas of action. Known as the 5 P's, these criteria require members to Pledge, Plan, Proceed, Publish and Persuade. Within each of the five areas, there are two categories – 'starting line' and 'leadership practices'. The Net Zero Carbon Events Roadmap aligns with the 'starting line' category, and within that framework companies who wish to pursue 'leadership practices' will be able to do so.

Criteria	Description
Pledge	Pledge at the head-of-organisation level to reach (net) zero GHGs as soon as possible, and by 2050 at the latest, in line with the scientific consensus on the global effort needed to limit warming to 1.5C with no or limited overshoot, recognising that this requires phasing down and out all unabated fossil fuels as part of a global, just transition. Set an interim target to achieve in the next decade, which reflects maximum effort toward or beyond a fair share of the 50% global reduction in CO2 by 2030. Targets must cover all greenhouse gas emissions: 1. Including scopes 1, 2 and 3 for businesses and other organisations. 2. Including all territorial emissions for cities and regions. 3. For financial entities, including all portfolio / financed / facilitated / insured emissions. 4. Including land-based emissions.
Plan	Within 12 months of joining, publicly disclose a Transition Plan, City / Region Plan, or equivalent which outlines how all other Race to Zero criteria will be met, including what actions will be taken within the next 12 months, within 2-3 years, and by 2030.
Proceed	Take immediate action through all available pathways toward achieving (net) zero, consistent with delivering your interim targets. Where relevant, contribute to sectoral breakthroughs.
Publish	Report publicly progress against both interim and longer-term targets, as well as the actions being taken, at least annually. Report in a standardised, open format, and via platforms that feed into the UNFCCC Global Climate Action Portal.
Persuade	Within 12 months of joining, align external policy and engagement, including membership in associations, to the goal of halving emissions by 2030 and reaching global (net) zero by 2050.

Figure B.1 Race to Zero Starting Line criteria

B.2 SCIENCE BASED TARGETS INITIATIVE

The Science Based Targets Initiative (SBTi)[54] is part of the World Resources Institute's Center for Sustainable Business and a collaboration of WRI, CDP, WWF and the UN Global Compact. SBTi defines and promotes best practices in emissions reductions and net zero targets in line with climate science, namely those which the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C.

SBTi provides technical assistance and resources to companies who set science-based targets and provides those companies with independent assessment and validation of targets. The Net Zero Carbon Events Initiative encourages companies to set targets which meet the goals

53 https://racetozero.unfccc.int/system/criteria/
54 https://sciencebasedtargets.org/resources/files/SBTi-criteria.pdf

of the Paris Agreement, but does not require them to formally adhere to the SBTi, nor seek accredited Science Based Targets.

The SBTi does provide some useful guidance for approaching Net Zero which may be applied by the more ambitious events companies and which are reflected in the Roadmap:

- **Scope 3 emissions coverage for near term (2030) targets:** Companies must set one or more emission reduction targets and / or supplier or customer engagement targets that collectively cover at least 67% of total Scope 3 emissions considering the minimum boundary of each category in conformance with the GHGP Corporate Value Chain A&R Standard
- **Scope 3 emissions coverage for long term (2050) targets:** The boundary of long term SBTs shall cover at least 90% of total scope 3 emissions. Exclusions must not exceed 10%
- **Carbon credits:** The use of carbon credits must not be counted as emission reductions toward the progress of companies near term or long term SBTs. Carbon credits may only be considered to be an option for neutralising residual emissions or to finance additional climate mitigation beyond their science based emission reduction targets
- **Avoided emissions:** Avoided emissions fall under a separate accounting system from corporate inventories and not count towards near or long term SBTs
- **State of net zero emissions:** Companies shall set one or more targets to reach a state of net zero emissions, which involves: (a) reducing their scope 1, 2 and 3 emissions to zero or to a residual level that is consistent with reaching net zero emissions at the global or sector level in eligible 1.5°C scenarios or sector pathways and; (b) neutralising any residual emissions at the net zero target date and any GHG emissions released into the atmosphere thereafter.
- **Base year:** The company shall use the same base year for its long-term science-based targets as its near-term SBTs. The base year must be no earlier than 2015.
- **Renewable electricity:** Targets to actively source renewable electricity at a rate that is consistent with 1.5°C scenarios are an acceptable alternative to scope 2 emission reduction targets. The SBTi has identified 80% renewable electricity procurement by 2025 and 100% by 2030 as thresholds (portion of renewable electricity over total electricity use) for this approach in line with the recommendations of RE100. Companies that already source electricity at or above these thresholds shall maintain or increase their use of renewable electricity to qualify.
- **Beyond value chain climate mitigation:** Companies should take action or make investments outside their own value chains to mitigate GHG emissions in addition to their near-term and long-term science-based targets. For example, a company could provide annual support to projects, programmes and solutions that provide quantifiable benefits to climate, especially those that generate additional co-benefits for people and nature. Companies should report annually on the nature and scale of those actions pending further guidance.
- **Neutralisation of unabated emissions to reach net zero:** Companies shall remove carbon from the atmosphere and permanently store it to counterbalance the impact of any unabated emissions that remain once companies have achieved their long-term science-based target, and thereafter.

B.3 SUSTAINABLE DEVELOPMENT GOALS

The 2030 Agenda for Sustainable Development[55], adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

55 https://sdgs.un.org/goals

Companies engaging fully with the concepts and priorities set out in the Net Zero Carbon Events Roadmap will be actively and directly contributing to the following SDGs.

- SDG2: No hunger
- SDG7: Affordable and clean energy
- SDG8: Decent work and economic growth
- SDG9: Industry innovation and infrastructure
- SDG12: Ensure sustainable consumption and production patterns
- SDG13: Take urgent action to combat climate change and its impacts
- SDG17: Partnerships for the goals

Alignment of the five Action Areas with the SDGs is provided in the introduction to Part 1 – Chapter 4.

B.4 ISO 20121

ISO 2021[56] is a sustainable management system standard for events. It offers guidance and best practice to manage events and control their social, economic and environmental impact. It takes a flexible approach which can be used for all kinds of events from music festivals to major sporting events, to conferences and trade shows, as well as smaller events. It addresses all stages of an event's supply chain and includes monitoring and measuring guidelines.

The ISO 20121 standard follows the PLAN – DO – CHECK – ACT approach and events which deploy the methodology will have a robust approach to sustainability management. Note, however, that it does not provide guidance or targets for decarbonisation specifically and that it applies only to event level application. Companies wishing to develop an environmental management system should consider ISO 14001 standards.

56 https://www.iso.org/iso-20121-sustainable-events.html

APPENDIX C: OTHER INDUSTRY NET ZERO PATHWAYS

Industry	Roadmap	Organisation	Key milestones
Travel & Tourism	A Net Zero Roadmap for Travel & Tourism[57]	World Travel & Tourism Council	Net Zero by 2050. Easy to abate industries (OTAs, Tas) to achieve Net Zero by 2030 or before. Harder to abate industries (accommodation, destination activities) to achieve Net Zero by 2040. Hard to abate industries (airlines, cruise) to achieve Net Zero by 2040.
Aviation	Fly Net Zero[58]	International Air Travel Association	Net Zero Carbon Emissions by 2050. 65% through sustainable aviation fuel. 3% through operations and infrastructure improvement. 13% through new technologies. 19% through offsetting and carbon capture.
Shipping[59]	Globally agreed targets	International Maritime Organization	To reduce total annual GHG emissions by at least 50% by 2050 compared to 2008. Reduce carbon intensity by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008.
Energy	Net Zero by 2050: A Roadmap for the Global Energy Sector[60]	International Energy Agency	See figure C.1 below
Food and Drink (UK only)	The Courtauld Commitment 2030[61]	WRAP	50% per capita reduction in food waste by 2030 (2007 baseline). 50% absolute reduction in GHG emissions associated with food and drink by 2030 (2015 baseline).
Concrete	Concrete Future – 2050 Cement and Concrete Industry Roadmap for Net Zero Concrete[62]	Global Cement and Concrete Association	Net Zero by 2050. By 2030, 25% reduction in CO2 per m3 of concrete, 20% reduction in CO2 per tonne of cement (on 2020 baseline).

57 https://wttc.org/Portals/0/Documents/Reports/2021/WTTC_Net_Zero_Roadmap.pdf
58 https://www.iata.org/en/programs/environment/flynetzero/
59 https://www3.weforum.org/docs/WEF_Report_on_Climate_Commitments_by_Signatories_to_the_Call_to_Action_for_Shipping_Decarbonization_2021.pdf
60 https://iea.blob.core.windows.net/assets/deebef5d-0c34-4539-9d0c-10b13d840027/NetZeroby2050-ARoadmapfortheGlobalEnergySector_CORR.pdf
61 https://wrap.org.uk/taking-action/food-drink/initiatives/courtauld-commitment
62 https://gccassociation.org/concretefuture/

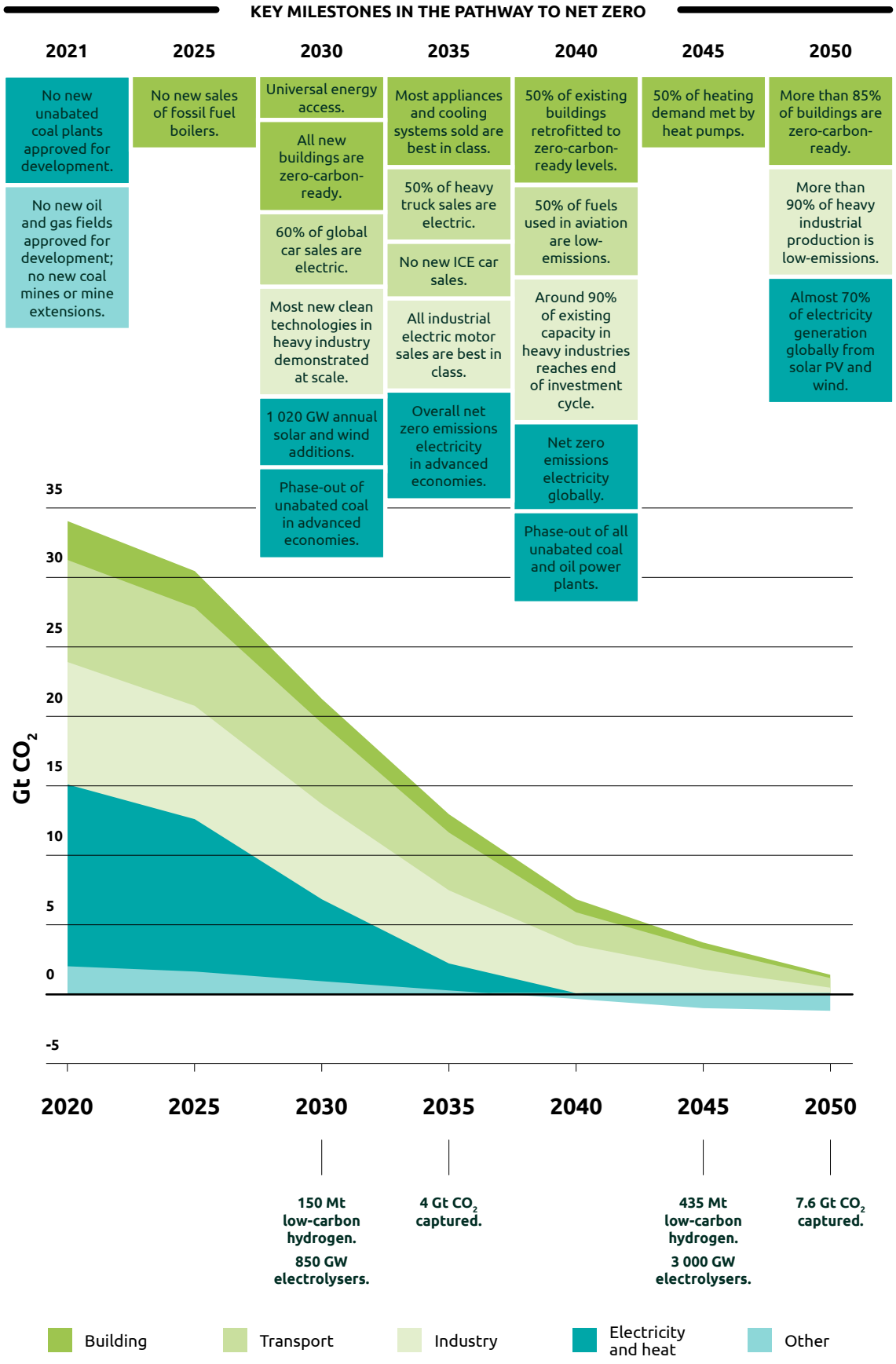


Figure C.1 : Key milestones in the pathway to net zero for the energy industry Source: IEA

63 https://iea.blob.core.windows.net/assets/deebef5d-0c34-4539-9d0c-10b13d840027/NetZeroby2050-ARoadmapfortheGlobalEnergySector_CORR.pdf

APPENDIX D: UNDERSTANDING THE EMISSIONS SOURCES OF AN EVENT

D.1 THE EMISSIONS SOURCES OF AN EVENT

In order to fully understand the carbon emissions associated with an event, it is important to look not only at those emissions generated at the time of the event itself, but those which take place outside the 'four walls' of the event venue before, during and after the event. In order to fully address Net Zero, organisations working in events need to take into account both the upstream emissions - i.e. those related to the production of materials and food, or transportation of people and items – and downstream emissions such as waste generated, as well as the emissions generated on site, such as electricity used in the venue. Figure D.1 outlines the main emissions sources throughout the events process and follows the same structure as the GHG Protocol Scope 1, 2 and 3 graphic in Part 1 – Chapter 1.

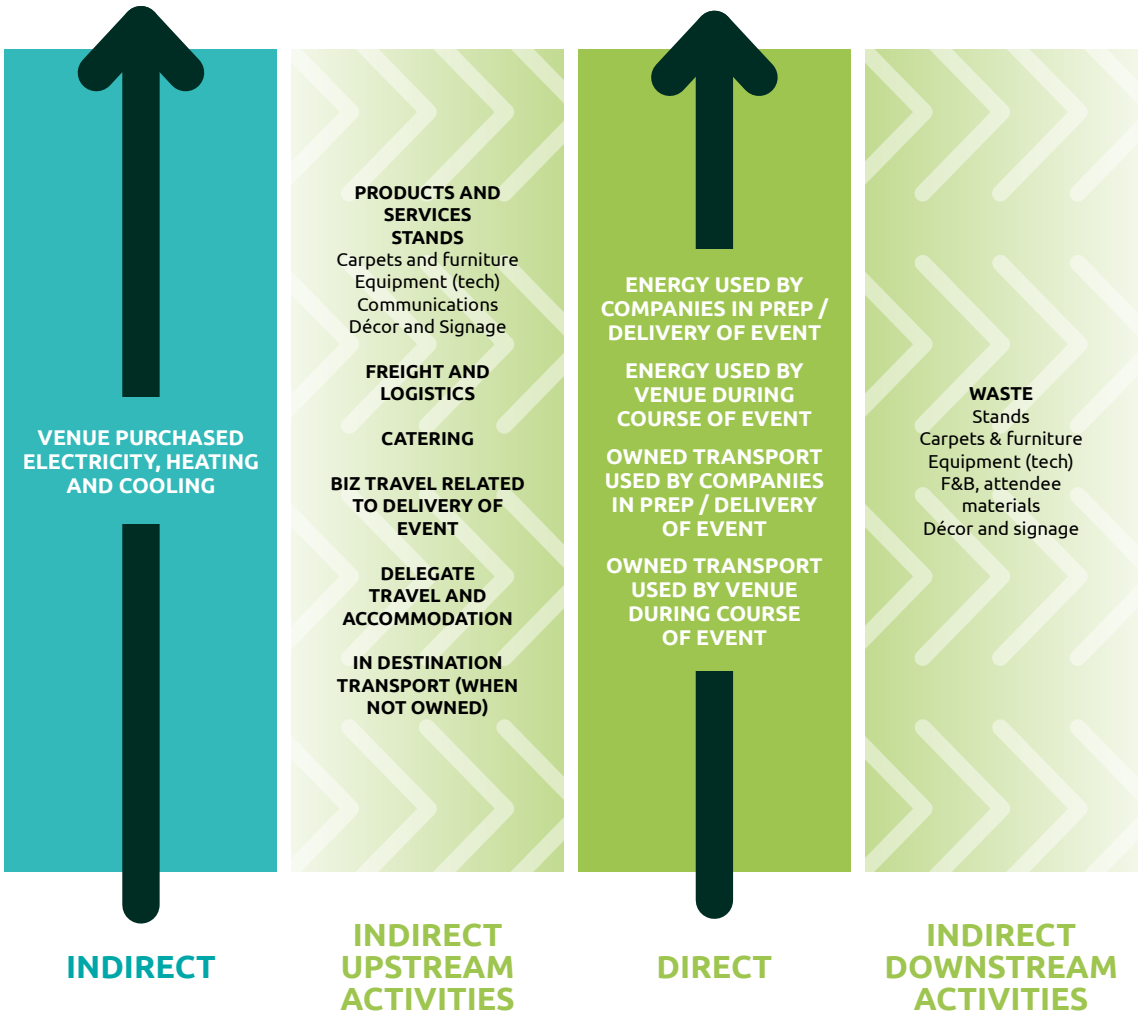


Figure D.1: The emissions sources of an event [adapted from GHG protocol]

In addition, most emissions sources of events are outside the direct control of the events industry itself. So, while attempts must be made to eliminate emissions where possible, there is also a significant role the events industry can play in terms of influencing those who do directly control the generation of carbon emissions.

D.2 EVENTS STAKEHOLDERS AND THEIR RELATIONSHIP TO THE CARBON FOOTPRINT

The value chain of the events industry is large and complex, with many and varied stakeholders. The focus of this Roadmap are those operators who are directly involved in the delivery of an event:

- **Organisers** – organisations, companies or individuals who plan and co-ordinate events. This includes professional conference organisers, associations which organise events for members, and in-house corporate event planners.
- **Venues** – organisations which own and / or manage the buildings or spaces where events take place.
- **Service providers** – contractors and vendors who provide goods and services to support the delivery of an event, including general service contractors, caterers, production suppliers among others.

Other key stakeholders for events include destinations, sponsors, exhibitors and visitors and, where they have a role to play in supporting the drive towards Net Zero, this is highlighted. However, further iterations of the Roadmap will seek to incorporate more focused and proactive plans for these groups.

In reality the level of influence that the events industry has over the different emissions sources associated with an event ranges from significant to very low, depending on the source. For example, venue energy consumption can be addressed directly by the venue through energy efficiency or purchasing of renewables. However the emissions associated with attendee travel to an event are largely out of the control of those organising the event.

Table D.2 Carbon emissions of an event

Category	Emissions source	Definition	Level of influence	Comments
Venue and buildings	On-site venue energy	Energy generated on site for the duration of the event, includes on site mobile power generators	HIGH	Venue can influence directly the type of energy generated on-site and efficiency measures to reduce energy usage, organiser can support by requesting appropriate temperatures etc. and pushing exhibitors to reduce stand consumption
	Purchased energy, heating and cooling for venue Purchased energy, heating and cooling for venue	Energy purchased from the grid during the event, and purchased heating and cooling to support the operations of the event	HIGH	Venue can influence energy efficiency measures and purchase of renewables where available
	Embodied carbon	Embodied carbon in the venue building	LOW	No influence on existing buildings, venue management may have some influence on new builds
	Transmission & Distribution (T&D) losses	The emissions caused by energy losses which occur in the process of supplying electricity to venues due to technical and commercial reasons	LOW	No influence
	Water	Water consumed during the course of the event	MEDIUM	Venues can put in efficiency measures but otherwise there is little influence over consumption

Continue >

Category	Emissions source	Definition	Level of influence	Comments
Space design and production[64]	Materials	Emissions generated in the manufacture of production materials such as stands, signage, carpets, etc.	HIGH	Organisers and service providers can stipulate sustainable or re-usable materials / systems, exhibitors can purchase
	Currently[41] excluded (but should be reported) unless rooms booked by company	Excluded	HIGH	Excluded
	Audio Visual	Emissions generated in the manufacture of AV equipment	LOW	No real influence and as AV equipment tends not to be single use, no real opportunity to reduce although organiser can influence type of equipment used
	Furniture	Emissions generated in the manufacture of furniture	MEDIUM	No real influence in terms of manufacture, although sustainable materials can be sought and products hired / reused
	Other	Emissions generated in the manufacture of other items	N/A	
Communica-tions	Paper	Emissions generated in the production of on-site guides, newspapers etc.	HIGH	Organisers can take steps to reduce amount of paper used through digital solutions
	Promotional material	Emissions generated in the production of badges, lanyards, merchandise	HIGH	Organisers can source sustainably produced products or reduce usage, as can exhibitors where relevant
	Intangible communications	Emissions generated from digital activities, promotions, livestream etc.	LOW	No real influence in terms of the emissions of data centres or data upload etc.
Catering	Production and transportation of food and drink	Emissions generated in the production and transportation of food and drink served on site, including contracted services	MEDIUM	The complexity of procurement of catering means that influence is limited, however opportunities for organisers and venues to promote sustainable food sourcing
Logistics	Freight Transport	Emissions generated through the transport of materials, exhibits etc.	MEDIUM	Service providers have a level of control regarding routes and transportation modes, actions can be taken to consolidate etc.

Continue >

64 Note that where space design and production elements are permanent parts of the venue, the embodied carbon can be included with the venue embodied carbon

Category	Emissions source	Definition	Level of influence	Comments
Travel to the event destination	Attendee travel	Emissions generated by Attendee travel to the destination	LOW[65]	Organisers have little influence on where Attendee travel from or modes of travel
	Exhibitor / sponsor travel	Emissions generated by exhibitor / sponsor travel to the destination	LOW	Organisers have little influence on where exhibitors / sponsors travel from or modes of travel
	Staff travel	Emissions generated by event staff travel to the destination	MEDIUM	All entities can influence staff travel routes and modes to a certain extent
Local transport	Attendee, exhibitor / sponsor, staff transport	Emissions generated by Attendees, exhibitor / sponsor, staff transport within the destination	MEDIUM	Promotion of local public transport or procurement of green vehicles can be influenced by organiser and venue
Accommoda-tion	Attendee accommodation	Emissions generated by Attendee accommodation at the destination	MEDIUM	Organisers can promote more sustainable accommodation options
	Exhibitor / sponsor accommodation	Emissions generated by exhibitor / sponsor accommodation in the destination	MEDIUM	Organisers can promote more sustainable accommodation options
	Staff accommodation	Emissions generated by staff accommodation at the destination	HIGH	All entities can actively influence staff staying in more sustainable accommodation options
Waste	General waste	Emissions generated by general or 'show floor' waste	HIGH	Venues can influence systems to reduce waste to landfill, organisers can promote recycling / reduced waste amongst attendees and contribute to new solutions
	Production waste	Emissions generated by waste caused by single use production items such as stands, carpets etc.	HIGH	Service providers or exhibitors can use reusable / sustainable items and dispose of single use items appropriately
	Food waste	Emissions generated by food waste	HIGH	Catering providers can reduce waste, organisers / venues can instigate donation programmes, composting etc. as well as attendee awareness

Depending on the event, the level of influence of these stakeholders to address carbon emissions will vary. For example, in the case of a corporate event where a company hosts a group of clients or employees, the company as the organiser has a high level of influence when it comes to the location chosen and the travel required. Whereas an organiser working on behalf of a different entity will have less ability to influence.

It is for this reason that a system-wide collaborative approach will be necessary in order to make progress in the decarbonisation of events.

65 In some specific cases, the organiser will be able to influence the location of the event based on proximity to the target audience.

D.3 SCOPES 1, 2 AND 3 FOR THE EVENT INDUSTRY

As outlined in Part 1 - Chapter 1, the Greenhouse Gas Protocol is the key standard for carbon accounting and can be used as a guide for organisations who are developing a net zero pathway of their own. While direct and indirect emissions are fairly simple to define and delineate, the vast majority of emissions generated at event level will fall into the value chain emissions of the events industry stakeholders hence the relatively low level of influence identified in the previous section.

This section provides an overview of how organisations can approach scopes 1, 2 and 3 with detailed guidance available in Part 2 – Section 1, particularly around setting the boundaries for Scope 3.

Scope 1: Direct GHG emissions	Scope 2: Electricity indirect GHG emissions	Scope 3: Value Chain GHG emissions
Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment. For most businesses in the events industry Scope 1 emissions will be limited to any on-site generated energy usage of corporate office buildings and venues, and emissions from company owned or leased vehicles.	Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company, including purchased heating and cooling. Scope 2 emissions physically occur at the facility where electricity is generated. For most businesses in the events industry Scope 2 emissions will include purchased electricity for corporate offices and in the case of venues, the venues themselves.	Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. This includes the emissions generated in the production of purchased goods and services and capital goods, by travel and distribution of products, business travel and employee commuting and waste. In the events industry, as with most others, the vast majority of emissions come from sources which are not owned or controlled by the company, be it an event organiser, venue or service provider. Examples of Scope 3 emissions include the emissions generated by upstream activities such as the production of exhibition stands and booths, catering and freighting of items to / from a venue, travel and accommodation of employees at an event, waste generated in an event and the travel of attendees to and from an event where it is purchased by the company.

APPENDIX E: PRIORITISATION OF EVENTS EMISSIONS

E.1 PRIORITY EMISSIONS SOURCES FOR THE EVENTS INDUSTRY

The ability to measure the full range of emissions at event level is a challenge, and apportioning emissions across different stakeholders similarly difficult and potentially time-consuming. Furthermore, when categories such as F&B or space design and production are analysed from a company perspective, they may be deemed not relevant; however when looked at from an industry-wide perspective their impact is significant.

As such, the Net Zero Carbon Events Initiative has undertaken a prioritisation exercise from the event industry perspective, to establish the emissions sources where collaborative action should be focused, regardless of whether they fall into an individual company's final Scope 3 boundary. All emissions sources were graded according to:

- Level of influence of the events industry (any of the key stakeholders).
- Size of emissions (i.e. the proportion of an event's emissions generated by that source).
- Significance (stakeholder expectations for action).

Category	Emissions source	Influence	Size	Significance
Venue and buildings	On-site venue energy	HIGH	HIGH	HIGH
	Purchased energy, heating and cooling for venue	HIGH	HIGH	HIGH
	Embodied carbon	LOW	LOW	LOW
	T&D Losses	LOW	LOW	LOW
	Water	MEDIUM	LOW	LOW
Space design and production	Stands	HIGH	MEDIUM	HIGH
	Production materials (e.g. carpets)	HIGH	MEDIUM	HIGH
	Signage	HIGH	LOW	MEDIUM
	Audio Visual	LOW	LOW	LOW
	Furniture	MEDIUM	MEDIUM	LOW
	Other	N/A	N/A	N/A
Communications	Paper	HIGH	LOW	LOW
	Promotional material	HIGH	MEDIUM	MEDIUM
	Intangible communications	LOW	LOW	LOW
Catering	Production and transportation of food & drink	MEDIUM	HIGH	HIGH
Logistics	Freight Transport	MEDIUM	HIGH	HIGH
Travel to the event destination	Attendee travel	LOW	VERY HIGH	HIGH
	Exhibitor / sponsor travel	LOW	MEDIUM	HIGH
	Staff travel	MEDIUM	MEDIUM	HIGH
Local transport	Attendee, exhibitor / sponsor, staff transport	MEDIUM	MEDIUM	MEDIUM
Accommodation	Attendee accommodation	MEDIUM	MEDIUM	MEDIUM
	Exhibitor / sponsor accommodation	MEDIUM	LOW	MEDIUM
	Staff accommodation	HIGH	LOW	MEDIUM
Waste	General waste	HIGH	HIGH	HIGH
	Production waste	HIGH	HIGH	HIGH
	Food waste	HIGH	MEDIUM	HIGH

66 The proportion of event emissions related to catering varies depending on type of event. For corporate events it is significant, for large exhibitions it is less significant in terms of %, but still important in terms of impact.
67 In some specific cases, the organiser will be able to influence the location of the event based on proximity to the target audience.
68 See comment above regarding catering.

Based on this analysis, four categories of emissions sources have been identified, from very high to low priority.

VERY HIGH PRIORITY	HIGH PRIORITY	MEDIUM PRIORITY	LOW PRIORITY
Scored high or very high on all three categories	**Scored high or very high in two categories**	**Scored high in one category**	**Did not score high in any category**
Venue energy, heating and cooling (on-site and purchased) General waste Production waste	Stands Production materials Production and transport of food and drink Freight transport Attendee travel Food waste	Paper Promotional material / merchandise Exhibitor / sponsor and staff travel Staff accommodation	Embodied carbon T&D losses Water AV[69] Furniture Intangible communications Transport in destination Attendee, exhibitor / sponsor accommodation

This analysis can help guide companies when it comes to setting their own Scope 3 boundaries, and has been used to inform the identification of Priority Action Areas for the events industry against which to structure the Roadmap.

69 Note that the emissions referred to here are the embodied carbon in the manufacture of AV systems, not the electricity used to power them which is included in the venue energy section.

APPENDIX F: A FRAMEWORK FOR MEASURING EVENTS EMISSIONS

F.1 METRICS

Part 2 – Section 2 outlines the key emissions sources to be measured across the board as a starting point. Table F.1 provides further details on the data to be collected, metrics to be reported and supporting information. It should be noted that research will be undertaken to determine industry coefficients and ratios for apportionment where real data is not available.

Emissions source	Data to be collected	Metrics to be reported	Notes
N/A	Number of event days (open to public). Number of event days (mounting / dismounting). Space rented by the event (net and gross, in m2 or square foot) – distinguish indoor and outdoor if not all indoor. Total number of attendees including staff.	Days. M2 or square foot (net and gross, in m2 or square foot). Number of attendees including staff.	General information which is needed to support calculations.
Venue energy (on-site generated)	Amount of each energy source used during the period of the event.	Total Direct energy (kwh). Total Indirect energy (kwh). Total Energy (direct + indirect) (kwh). Energy intensity (kwh / m2). Total renewables generated on site (kwh). Total renewables purchased (kwh). Total renewables based on grid (kwh). % of renewables .	If specific data is not available venues should take annual usage and divide by total floor area of the venue and 365 in order to get average usage per m2 per day. This can then be apportioned per event relating to area covered and number of days[70]. Event period should include build up and break down.
Venue electricity (purchased)	Amount of electricity purchased during the period of the event.		
Water	Amount of water consumed during the event.	(Gallons or litres).	Apportionment may also be necessary (see above).
Production material	Material type(s) and weight.	Weight (kg) of each type of material.	Should be broken down into material type (carpet, metal, wood etc.).
Design material	Material type(s) and weight.	Weight (kg) of each type of material	Should be broken down into material type (paper, foam board, laminate etc.).
Food consumed	Number of meals consumed and category (red meat, other meat / seafood, vegetarian, vegan).	Number served of each meal type (#). Carbon emissions of menu.	Proposed categorisation of meals • Red meat • Other meat / seafood • Vegetarian • Vegan
Logistics / freight	Mode of transport, distance and weight / volume transported .	Total distance (km) and weight (kg) of each mode of transport.	Air, Rail, Sea, Road Separate out if SAFs, EVs etc. are used, if known.
Travel (attendees and staff)	City of origin, mode of transport for each attendee. Any journeys offset.	Total distance (km) for each mode. Total offsets purchased.	Air, Rail, Sea, Road.

Continue >

70 Note that this is a temporary suggestion and a more thoroughly researched approach which accounts for different usage types will be developed and included at a later date.

Emissions source	Data to be collected	Metrics to be reported	Notes
Accommodation (attendees and staff)	Accommodation type (star-rating) and number of nights for each attendee.	Total number of nights for each accommodation type.	
Waste	Type of waste and weight (sent to landfill). Type of waste and weight (recycled). Food waste composted No of meals donated.	Total weight of each waste type (kg) and % to landfill or recycled (diverted).	If waste is sorted then that data should be shared too (e.g. plastic, paper, glass, metal, fabric, wood, food etc.). Where weight data is not available, volume data can be collected and converted into weight following industry guidance.

F2. DATA COLLECTION RESPONSIBILITIES

The table below sets out the entity or entities which should take responsibility for data collection for different emissions sources at events. Note that this does not mean that entity should take responsibility for reducing or offsetting those emissions, but should ensure that the systems are in place to measure and report the emissions. Fundamental to the ability to measure and reduce emissions across all elements of the event is for data to be shared with stakeholders, so those entities collecting data should also be prepared to share it.

Category	Emissions source	Data collection responsibility	Comments
Venue and buildings	On-site venue energy	Venue	
	Purchased energy for venue	Venue	
	Embodied carbon	Venue	
	Water	Venue	
Space design and production	Stands	Organiser and / or service provider	Entity in direct contact with supplier
	Carpets	Organiser or service provider	Entity in direct contact with supplier
	Signage	Organiser or service provider	Entity in direct contact with supplier
	Audio Visual	Organiser or service provider	Entity in direct contact with supplier
	Furniture	Organiser or service provider	Entity in direct contact with supplier
	Other	Organiser or service provider	Entity in direct contact with supplier
Communications	Paper	Organiser	
	Promotional material	Organiser	
	Intangible communications	Organiser	
Catering	Production and transportation of food and drink	Venue or Organiser	Entity in direct contact with supplier
Logistics	Freight Transport	Venue or service provider	Entity in direct contact with supplier
Travel to the event destination	Attendee travel	Organiser	
	Exhibitor / sponsor travel	Organiser or service provider	Entity in direct contact with exhibitor / sponsor
	Staff travel	ALL	Each responsible for own

Continue >

Category	Emissions source	Data collection responsibility	Comments
Local transport	Attendee, exhibitor / sponsor, staff transport	Organiser	
Accommodation	Attendee accommodation	Organiser	
	Exhibitor / sponsor accommodation	Organiser	
	Staff accommodation	ALL	Each responsible for own
Waste	General waste	Venue	
	Production waste	Venue, organiser or service provider	Venue except in case of exhibitors removing waste in which case organiser or service provider, depending on who has the relationship
	Food waste	Venue or service provider	Entity in direct contact with catering facility

F.3 DATA SOURCES

A number of data sources are available that can help to determine the carbon footprint of different elements of an event. Some are shared below and this list will be further refined over time and as the Net Zero Carbon Events workstreams make progress.

General

- https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1049346/2021-ghg-conversion-factors-methodology.pdf

Accommodation

- https://hotelfootprints.org

Aviation

- https://www.icao.int/environmental-protection/Carbonoffset/Pages/default.aspx

Carpets

- Sim, Jaehun & Prabhu, Vittal. (2017) The life cycle assessment of energy and carbon emissions on wool and nylon carpets in the United States https://www.sciencedirect.com/science/article/abs/pii/S0959652617322059

Embodied Carbon of Buildings

- Embodied Carbon in Construction Calculator (EC3) Tool (2019) by the Carbon Leadership Forum (CLF): https://carbonleadershipforum.org/ec3-methodology/
- Building Life Cycle Assessment in Practice Guide (2010) by the American Institute of Architects (AIA): https://www.aia.org/resources/7961-building-life-cycle-assessment-in-practice
- Methodology to Calculate Embodied Carbon of Materials (2012) by Royal Institution of Chartered Surveyors (RICS): https://www.igbc.i.e./wp-content/uploads/2015/02/RICS-Methodology_embodied_carbon_materials_final-1st-edition.pdf
- Inventory of Carbon and Energy (ICE) Database Version 3.0 (2019) by Circular Economy and University of Bath: https://circularecology.com/embodied-carbon-footprint-database.html
- Emission Reduction Tool (H\B:ERT) by Hawkins\Brown using the ICE Database: https://www.hawkinsbrown.com/services/hbert

- Embodied Carbon Guidance (2019) by International Living Future Institute (ILFI): https://buildingtransparency-live-87c7ea3ad4714-809eeaa.divio-media.com/filer_public/5f/b8/5fb8936f-2e92-40a0-94b9-43185107612c/wc_am-embodiedcarbonguidancedocpdf.pdf
- Getting to Zero Embodied Carbon resources: https://gettingtozeroforum.org/embodied-carbon/
- IFC EDGE India Construction Materials Database: https://edgebuildings.com/india-construction-materials-database/ (embodied energy; need to be converted into embodied carbon)
- Embodied Carbon Pilot by University of British Columbia (UBC): https://strategicplan.ubc.ca/embodied-carbon-pilot-helps-building-industry-address-climate-change/

Food

- https://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch2ref3.pdf

Furniture

- https://www.fira.co.uk/technical-information/sustainability/carbon-footprint-calculator-template
- https://research.aalto.fi/en/publications/main-factors-influencing-greenhouse-gas-emissions-of-wood-based-f

Intangible Communications

- https://www.iea.org/reports/data-centres-and-data-transmission-networks

Paper

- https://www.epa.vic.gov.au/about-epa/publications/1374-1

APPENDIX G: PURCHASED RENEWABLE ENERGY - KEY CONCEPTS AND DEFINITIONS

G.1 OVERVIEW

After reducing carbon emissions through energy efficiency measures, procurement of renewable energy is the next step which can significantly reduce emissions. It is a strategy that is highly recommended once the market that the company is in is suitably developed.

Based on criteria such as the total supply of renewable energy (RE) available, total demand for renewable energy, the policy environment and market infrastructure (such as climate commitments), markets are then designated as 'immediate' or 'next' markets. This is reflected in the equity considerations outlined for Action Area 1 of this roadmap.

- **Immediate markets** are those which have access to REC / EAC or direct sourcing of Power Purchase Agreements at reasonable costs since companies are able to purchase RE and reduce emissions immediately.
- **Next markets** are all other markets. They are expected to prioritise energy efficiency and carbon offsetting while waiting for the RE market to mature.

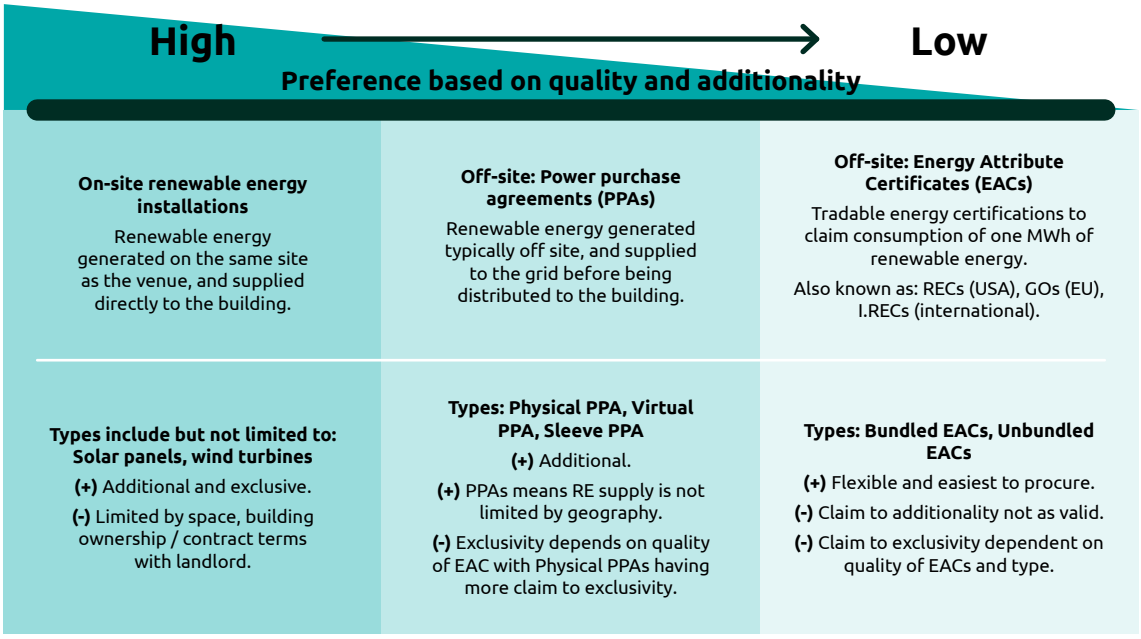
Within each immediate and next market, there is a spectrum of renewable energy options of varying quality. This appendix is a summary of key concepts of the renewable energy world. For a more detailed overview of renewable energy strategies, refer to appendix D of the Net Zero Hotel Methodology.

G.2 HIERARCHY OF RENEWABLE ENERGY

Different renewable energy strategies will have a different impact, and the hierarchy below provides a framework for evaluating each strategy against the key concepts of exclusivity and additionality, which are proxy measures of quality.

The hierarchy is based on the extent renewable energy sources can be considered guaranteed to be exclusive and additional.

- **Exclusivity** refers to the extent to which an entity can claim and credibly prove that there was no double-counting for that MWh of renewable energy and that it was generated from renewable sources.
- **Additionality** refers to the extent a method adds to the supply of renewable energy and that it would not have been produced if an entity had not signaled demand for it.



1. **On-site renewable Energy**
    - Commonly include installation of solar panels and wind turbines, for examples.
    - Most preferred as it is additional to any anticipated urban plans for renewable energy. It is also the most easily verifiable and exclusive.
2. **Power-purchase agreements**
    - A power purchase agreement (PPA), or electricity power agreement, is a contract between 2 parties, typically an energy generator and a power purchaser. PPAs define all of the commercial terms of the power supply contract, including duration, schedule for delivery of electricity, penalties for under delivery, payment terms, and termination. There are three main types of PPAs, Physical PPA, Virtual / financial PPA and Sleeve PPA. Refer to appendix D for more information on each type of PPA.
    - PPAs are additional as they guarantee future demand, thereby giving developers the confidence to develop RE projects. Exclusivity depends on the quality of the corresponding Energy Attribute Certificates (EACs).
3. **Energy Attribute Certificates (EACs)**
    - Tradeable energy certificates certify that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource (renewable electricity) and was fed into the grid. These allow businesses to have a valid claim to renewable energy use since it is difficult to tell the source of grid power.
    - There are bundled EACs and Unbundled EACs
        - **Bundled EACs** are sold together with their associated energy from the grid which helps finance future RE projects
        - **Unbundled EACs** are sold separately from the underlying energy production and are typically excess RE from oversupplied renewable energy markets. Unbundled EACs are thus the least preferred of RE purchase types since they do not signal demand for additionality.

G.3 HOW TO PURCHASE RENEWABLE ENERGY

There are 5 methods of purchasing EACs / RECs.

1. **Utilities:** Many electric utility providers now offer customers renewable power programmes at a small premium of about 1 to 2 cents per kWh.
2. **Auctions and Exchanges:** Entities covered by mandatory national / regional programmes like renewable purchase obligations in India (RPOs) and Renewable Portfolio Standards in US, can purchase RECs through national / registries and auctions by bidding.
3. **Brokers / Traders / Consultants:** There are various brokers, traders and consultants involved that can secure delivery of RECs and IRECs and can also add quality labels that enable customers to make certifiable claims on the additional impacts of purchases.
4. **Third-party organisations:** There are several third-party organisations which provide unbundled RECs.
5. **Green Tariffs:** These are energy contracts sold to energy users by utility companies that only source their energy from 100% renewable sources. Such contracts enable buyers to purchase bundled renewable energy from a specific project through a special utility tariff rate.

APPENDIX H: METHODOLOGY AND ACKNOWLEDGEMENTS

The Draft Roadmap has developed following an iterative and consultative process including:

1. Desk study research on existing initiatives, measurement, data and roadmaps, including events company sustainability reports.
2. Survey of Net Zero Carbon Events supporters – please see www.netzerocarbonevents.org/resources for more details on the survey and findings.
3. Consultations with key stakeholders including a webinar presentation to supporters in March 2022.
4. Three rounds of drafting, review and revisions with input from the Net Zero Carbon Events Task Force[71].
5. Consultations with all supporters including a webinar presentation in May 2022. All supporters were invited to provide written feedback.
6. Feedback received from supporters integrated into Roadmap draft v2.
7. Draft v2 was presented for public consultation and feedback received was integrated into v3.

Draft v3 was shared for final review by the Task Force and became the Roadmap.

71 The following organisations are represented on the Net Zero Carbon Events Task Force (project office run by UFI, with the technical support of Greenview): AIPC, Clarion Events, Emerald, Freeman, HKCEC, ICCA, In-House Corporate Events / Maritz Global Events, Informa Markets, Italian special occasions, Javits Center, MCI, Messe München, RX, Scottish Exhibition Campus, Tarsus & UNFCCC.

APPENDIX I: GLOSSARY

- **1.5°C target** | It is a target to limit the average rise in global temperatures by 1.5°C by 2030 above pre-industrial levels.
- **2-Degree Scenario** | Widely accepted as the limitation to global average temperature growth to prevent significant changes to the planet. One of the goals of the 2015 Paris Agreement is to limit global average temperature to well below 2°C above pre-industrial levels, and pursue efforts to limit temperature increase to 1.5°C, which is the 1.5°C target.
- **Baseline / Base year** | a minimum or starting point used for comparisons and measuring progress against.
- **Biodegradable** | A quality describing materials which have can be decomposed by bacteria or fungi, thereby reducing waste. It is not the same as compostable.
- **Biodiversity** | The variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable.
- **Biophilic Design** | A concept used within the building industry to increase occupant connectivity to the natural environment using direct nature, indirect nature, and space and place conditions.
- **Carbon Capture** | the process of capturing and storing carbon dioxide (CO2) before it is released into the atmosphere.
- **Carbon Credits** | Permits which allows a country or organisation to produce a certain amount of carbon emissions, and which can be traded if the full allowance is not used.
- **Carbon footprint** | According to the WHO, a carbon footprint is a measure of the impact your activities have on the amount of carbon dioxide (CO2) produced through the burning of fossil fuels and is expressed as a weight of CO2 emissions produced in tonnes.
- **Carbon Emissions** | Carbon dioxide (CO2) emitted when fossil fuels are burned in vehicles, buildings, industrial processes and so on.
- **Carbon Neutral Event** | An event whereby event organisers have made efforts to reduce non-essential emissions and offset the remaining unavoidable greenhouse gases (GHGs) to balance out emissions resulting from event activities.
- **Carbon offsets** | A carbon offset broadly refers to a reduction in GHG emissions – or an increase in carbon storage (e.g., through land restoration or the planting of trees) – that is used to compensate for emissions that occur elsewhere.
- **Carbon removal** | Carbon removal is the process of removing carbon dioxide from the atmosphere and locking it away for as long as possible.
- **Carbon Sink** | A carbon sink is anything that absorbs more carbon from the atmosphere than it releases – for example, plants, the ocean, and soil.
- **Carbon Source** | A carbon source is anything that releases more carbon into the atmosphere than it absorbs – for example, the burning of fossil fuels or volcanic eruptions.
- **Climate action** | Climate action is any policy, measure, or programme that reduces greenhouse gases, builds resilience to climate change, or supports and finances those goals.
- **Climate Change** | Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, but since the 1800s, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels (like coal, oil, and gas), which produces heat-trapping gases.
- **Climate Impacts |** Long term shifts in temperature and weather patterns as a result of human activities – the burning of fossil fuels.
- **Circular Economy**[72] | An approach to a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum. When a product reaches the end

72 https://www.europarl.europa.eu/news/en/headlines/economy/20151201STO05603/circular-economy-definition-importance-and-benefits

of its life, its materials are kept within the economy wherever possible. These can be productively used again and again, thereby creating further value. Whereas Linear Approach is a process or development is one in which something changes or progresses straight from one stage to another and has a starting point and an ending point.

- **Diverted from Landfill** | The prevention and reduction of generated waste from reaching the landfills through source reduction, recycling, reuse, and composting.
- **DMO (Destination Management Organization)** | A professional services company with local knowledge, expertise, and resources, working in the design and implementation of events, activities, tours, transportation, and programme logistics.
- **EAC** | Energy Attribute Certificates, proof of electricity produced by renewable sources. Each EAC endorses that 1MWh was generated and injected to the grid by a specific renewable source, such as wind or solar plant.
- **Ecological Impact** | The effect of human activities and natural events on living organisms and their non—living environment.
- **Equity Considerations** | The quality of being impartial, reasonable, or fair. The concept of equity considerations or equity principles comes from the UN Race to Zero criteria and is also part of UNFCCC's guiding principles.
- **Embodied carbon** | Embodied carbon refers to carbon emissions associated with materials and construction processes throughout the whole lifecycle of a building or infrastructure. This includes emissions released before it begins operation, caused by extraction, manufacture / processing, transportation and assembly of every element and material used in the building. It also includes the emissions from maintenance and replacement activities during its use stage, and emissions from deconstruction / demolition and disposal during its end-of-life stage.
- **Emissions Boundaries** | The definition of the composition of the company or entity for which a carbon footprint is being calculated, the emissions sources to be included and the timeframe to which the footprint relates.
- **ESG** | Environment, Social, Governance as criteria for investing.
- **EU Fit for 55 Plan** | A package by the European Union (EU) designed to reduce the EU's greenhouse gas emissions by 55% by 2030.
- **Event Carbon Footprint** | The total greenhouse gas emissions caused by an event inclusive of individuals, products, places, services expressed as a carbon dioxide equivalent (CO_2e).
- **Green Energy Tariffs** | An electricity rate that allows customers to purchase electricity sourced from renewable or green resources from their local energy provider.
- **Greenhouse Gas (GHG)** | Gases in the atmosphere that absorb and emit energy, affecting the earth's temperature. Some common GHGs are water vapor (H_2O), Carbon Dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O).
- **Greenhouse Gas (GHG) Protocol Corporate Accounting and Reporting Standard** | A standard designed for organisations to inventory and report all of the GHG emissions they produce.
- **Intergovernmental Panel on Climate Change (IPCC)** | The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.
- **LED** | Light Emitting Diode.
- **Long-term Decarbonisation** | Decarbonisation refers to a strategy an entity may take to reduce their carbon footprint. Long-term decarbonisation in turn refers to strategies with a long time horizon towards 2050. Such strategies are needed to achieve the Paris Agreement goal of limiting global average temperature to well below 2°C, and preferably 1.5°C, relative to pre-industrial levels. To do so, there is scientific consensus that carbon emissions have to be reduced by half by 2030 and reach net zero by 2050.
- **Milestones** | A Significant stage or event in the development of something.

- **Net Zero** | Refers to a state in which the greenhouse gases going into the atmosphere are balanced by removal out of the atmosphere to mitigate global warming. The IPCC concluded that net zero carbon has to be achieved by 2050 to limit global warming at 1.5°C. Other similar but different terms refer to the different ways in which emissions sources and sinks are accounted for in context, and help to indicate what is included and excluded in the calculations:
  - **Climate Neutral:** An actor's activities result in no net effect on the climate system. Any GHG emissions or other activities with warming effects are fully compensated by GHG reductions or removals, or other activities with cooling effects — irrespective of the time period or the relative magnitude of emissions and removals involved. A near synonym for GHG neutral, but climate neutral also includes non-GHG radiative forcing effects, such as land use changes with albedo effects. Not a valid end-state target, as it does not require "like for like" balancing, but a possible intermediate step.
  - **Carbon Neutral:** An actor's net contribution to global CO2 emissions is zero. Any CO2 emissions attributable to an actor's activities are fully compensated by CO2 reductions or removals exclusively claimed by the actor — irrespective of the time period or the relative magnitude of emissions and removals involved. Not a valid end-state target, as it only refers to carbon, but a possible intermediate step.
- **Net Zero Carbon Events Pledge** | (referred to as Pledge) A commitment by signatories within the events industry.
- **Net Zero Carbon Events Initiative** | An Events Industry Initiative to Address Climate Change through the development of a framework to reduce carbon emissions by 50% by 2030 and work towards net zero by 2050.
- **Net Zero Carbon Events (NZCE) Task Force** | The group of individuals who are actively involved in the development of the initiative.
- **Net Zero Pathway** | Refers to the temporal evolution of natural and / or human systems towards a future net zero state. The trajectory is modeled based on a set of features such as technological advancement and institutional policy changes, depending on the course of action and strategy set by countries and organisations to achieve net zero carbon emissions by the selected date.
- **Non-Renewable Energy Sources** | Coal, natural gas, oil, and nuclear energy. Once these resources are used up, they cannot be replaced, which is a major problem for humanity as we are currently dependent on them to supply most of our energy needs.
- **Paris Agreement** | The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016.
- **Participants** | A person who takes part in something.
- **Power Purchase Agreements (PPA)** | A contract between two parties, one which generates electricity and one which is looking to purchase electricity.
- **Renewable energy (RE)** | Energy that is sourced from resources that will not be depleted.
- **REC** | Renewable Energy Certificate, is a market-based instrument that represents the property rights to the environmental, social, and other non-power attributes of renewable electricity generation.
- **Residual Carbon Emissions** | Any GHG Emissions which remain after a project or organisation has implemented all technically and economically feasible opportunities, to reduce emissions in all scopes and from all sources.
- **Scopes 1, 2, 3**
  - **Scope 1** emissions are direct emissions from company-owned and controlled resources. In other words, emissions are released into the atmosphere as a direct result of a set of activities, at a firm level.
  - **Scope 2** emissions are indirect emissions from the generation of purchased energy, from a utility provider. In other words, all GHG emissions released in the atmosphere, from the consumption of purchased electricity, steam, heat and cooling.
    - Location based emissions reflects emissions of grids on which energy consumption occurs (using mostly grid-average emission factor data).
    - Market-based emissions method reflects emissions from electricity that companies have purposefully chosen (or their lack of choice).

    - **Scope 3** emissions are all indirect emissions – not included in scope 2 – that occur in the value chain of the reporting company, including both upstream and downstream emissions. In other words, emissions are linked to the company's operations.
- **SDGs** | Sustainable Development Goals or Global Goals are a collection of 17 interlinked global goals designed to be a "shared blueprint for peace and prosperity for people and the planet, now and into the future". The SDGs were set up in 2015 by the United Nations General Assembly and are intended to be achieved by 2030.
- **Service Provider** | An Individual or business that provides a service to another organisation.
- **Single Use Plastics** | Plastic Products used once, or for a short period of time, before being thrown away.
- **Stakeholders** | An individual, group, or organisation that is impacted by the outcome of a project or a business venture.
- **Supply chain** | The sequence of processes involved in the production and distribution of a commodity.
- **Sustainability** | Meeting the needs of the present without compromising the ability of future generations to meet their own needs.
- **Sustainability Criteria** | Requirements to the sustainable quality of a product and its sustainable production, which have to be fulfilled in order to acquire a sustainability status or certification.
- **Sustainable Materials** | Materials used throughout our consumer and industrial economy that can be produced in required volumes without depleting non-renewable resources and without disrupting the established steady-state equilibrium of the environment and key natural resource systems.
- **Task Force on Climate Related Disclosure (TCFD)** | A group providing recommendations on climate-related financial disclosures meant to help companies provide better information to support informed capital allocation.
- **T&D Losses** | Transmission & distribution loses in the electricity sector occur when the amount of electricity generated is greater than the amount of electricity delivered to end-users. T&D losses are included in the Scope 3 Protocol and are a common category for CDP and SBTi, and as such are necessary to include.
- **Unimev** | Union Française des Métiers de l'Événement.
- **UNFCC** | United Nations Framework Convention on Climate Change.
- **UN Race to Zero** | Global campaign criteria to rally leadership and support from businesses, cities, regions, investors for a healthy, resilient, zero carbon recovery that prevents future threats, creates decent jobs, and unlocks inclusive, sustainable growth.
- **Value chain (upstream and downstream)** | The process or activities by which a company adds value to an article, including production, marketing, and the provision of after-sales service. The upstream part of the value chain includes all the materials, people and environmental factors that contribute to the product and service. The downstream value chain is generally classified as what happens once a product or service has left the door for the consumer.
- **Zero Emissions** | An engine, motor, process, or other energy source, that emits no waste products that pollute the environment or disrupt the climate.
- **Zero Waste** | A set of principles focused on waste prevention that encourages redesigning resource life cycles so that all products are reused.

APPENDIX J: REFERENCES AND RESOURCES

- Carbon Disclosure Project: https://www.cdp.net/en
- Climate Change on your Plate (page 27) (2012) by WWF Germany: https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/Climate_change_on_your_plate.pdf
- Climate Action 100+: https://www.climateaction100.org/progress/net-zero-company-benchmark/
- Climate Active: Carbon Neutral Events https://www.industry.gov.au/data-and-publications/climate-active-carbon-neutral-standard-for-events
- Climate Neutral Now: https://unfccc.int/climate-action/climate-neutral-now
- Cornell Hotel Sustainability Benchmarking: https://greenview.sg/chsb-index/
- Courtauld Commitment 2030:https://wrap.org.uk/taking-action/food-drink/initiatives/courtauld-commitment
- Determining Materiality in Carbon Footprinting: What Counts and What Does Not: https://ecommons.cornell.edu/bitstream/handle/1813/71114/Ricaurte_202012_20Determining_20materiality.pdf?sequence=1
- Environmental Protection Agency: GHG Inventory Guidance – Indirect Emissions from Events and Conferences https://www.epa.gov/sites/default/files/2018-12/documents/indirectemissions_draft2_12212018_b_508pass_3.pdf
- Events Industry Council Sustainable Events Standard https://insights.eventscouncil.org/Sustainability/Sustainability-Standards-and-Registry
- Finding the future, together: Towards a more sustainable B2B trade show industry in the U.S. and Canada, September 2022 https://www.ufi.org/wp-content/uploads/2022/09/Finding_the_Future-Final_Report.pdf
- Green Events Tool (UNFCCC, UNEP, GED) www.greeneventstool.com
- Greenhouse Gases (GHG) Protocol:
  - https://ghgprotocol.org/corporate-standard
  - https://ghgprotocol.org/standards/scope-3-standard
  - https://ghgprotocol.org/calculation-tools
- Intergovernmental Panel on Climate Change Assessment Report 5: https://www.ipcc.ch/report/ar5/syr/
- ISLA Trace / Proceed www.weareisla.co.uk
- ISO 20121 Sustainable Events Standard https://www.iso.org/iso-20121-sustainable-events.html
- Science Based Targets Initiative (SBTi) Net zero Targets: https://sciencebasedtargets.org/net-zero
  - SME Climate Hub: https://businessclimatehub.org/wp-content/uploads/2020/09/About-the-SME-Climate-Commitment-v1.0.pdf
- Reducing food's environmental impacts through producers and consumers (2018): https://globalsalmoninitiative.org/files/documents/Reducing-food%E2%80%99s-environmental-impacts-through-producers-and-consumers.pdf
- Thailand Convention and Events Bureau : How to organise carbon neutral events https://www.businesseventsthailand.com/en/press-media/news-press-release/detail/1364-carbon-neutral-exhibition-sustainable-mice-events-for-environment-conservation
- UK Green Building Council: Guide to Scope 3 Reporting in Commercial Real Estate https://www.ukgbc.org/ukgbc-work/scope-3-reporting-in-commercial-real-estate/
- UN Race to Zero: https://unfccc.int/climate-action/race-to-zero-campaign
- United Nations Environment Program (UNEP) Emissions Gap Report 2019: https://wedocs.unep.org/bitstream/handle/20.500.11822/30797/EGR2019.pdf
- United Nations Environment Program (UNEP) Food Waste Index Report 2021: https://www.unep.org/resources/report/unep-food-waste-index-report-2021
- World Economic Forum and JLL : Green Building Principles – The Action Plan for Net Zero Carbon Buildings: https://www.weforum.org/reports/green-building-principles-the-action-plan-for-net-zero-carbon-buildings/

THE NET ZERO CARBON EVENTS INITIATIVE WOULD LIKE TO THANK THE FOLLOWING COMPANIES FOR THEIR SUPPORT.

Please visit Funding Opportunities | Net Zero Carbon Events for more information

VISIT

PLATINUM LEVEL

Freeman

informa

JAVITS CENTER

Questex

RX

ufi The Global Association of the Exhibition Industry

GOLD LEVEL

香港會議展覽中心 Hong Kong Convention and Exhibition Centre

ICCA

IEEE Advancing Technology for Humanity

Messe München

SEC Scottish Event Campus

SISO SOCIETY OF INDEPENDENT SHOW ORGANIZERS

SILVER LEVEL

ADNEC مجموعة أدنيك GROUP

CLARION EVENTS

EMERALD

imex GROUP

Tarsus

GREEN LEVEL

AIPC EXCELLENCE IN CONVENTION CENTRE MANAGEMENT

GLASGOW CONVENTION BUREAU

IAPCO MEETING QUALITY

montECOlino RECYCLING CARPET

NBAA

OLYMPIA London

OMEGA GROUP A Live Communications, Production, Design & Marketing Company EXPO

Stockholmsmässan

ENERGY FOR EVERYONE
propane

Events Industry Leader Relies on Propane to Keep Shows Running

Thanks to propane's versatility and quick refueling, Freeman is able to keep forklifts and shows running smoothly

Freeman is a global industry leader in creating event experiences, ranging from conferences and meetings to exhibitions and VIP showcases. With 95 years of experience running events, Freeman knows that reliable, efficient material-handling equipment is crucial to making its events a success — and propane forklifts have proven to meet these needs consistently and repeatedly.

When working with local vendors to employ a forklift fleet at a show, Freeman found that propane provides a powerful, reliable, and clean energy option to get the job done successfully, from operating on the floor to refueling and every step in-between.

> "Propane is vital for our industry at this point. I don't know what the future holds, but we could not do shows without propane. It's imperative to have propane in our business."
>
> **RON BROWN**
> FREEMAN SENIOR VICE PRESIDENT OF DELIVERY AND BRAND EXPERIENCE

100% POWER FROM PROPANE

On average, Freeman runs its propane forklifts for 14 hours a day, meaning it's imperative to keep the forklift fleet reliably running on schedule. Fortunately, propane-powered forklifts provide 100% power throughout operation, with one propane cylinder powering a forklift for an entire eight-hour shift without slowing down. Propane forklifts maintain consistent travel speeds and acceleration compared to battery-powered forklifts, while electric forklifts do not have the lift capacity required to transport product for an entire eight-hour shift.

CONVENIENT REFUELING

Because Freeman's teams work on a tight schedule, it's imperative to have quick refueling processes in place. Typically, cages of propane cylinders are set up in a safe space near the convention center, which a local propane supplier refills each day. The space required for recharging infrastructure brings added cost as well as the electric bill associated with recharging an entire electric forklift fleet. If the Freeman team were to deploy an electric forklift fleet, the venue would need a dedicated recharging space and enough forklifts to rotate throughout the day to keep product moving while recharging other forklifts.

CLEAN & SUSTAINABLE

Despite recent pushes to reduce emissions by banning internal combustion engines for electric models, event industry professionals know it's unrealistic and not the cleanest option. In fact, propane forklifts produce 76% fewer sulfur oxide emissions and have a lower carbon footprint than electric forklifts when lifecycle emissions are considered. This is due to the number of emissions produced in the manufacturing, transportation, and disposal of electric forklift batteries, as well as the generation and distribution of electricity, which often still comes from a coal power plant.

FREEMAN PROPANE FORKLIFT HIGHLIGHTS

125+
FORKLIFTS
used during Freeman's largest events

14
HOURS
average run time of propane forklifts during events

30%
COST SAVINGS
in purchasing propane forklifts vs. electric models

76%
FEWER
sulfur oxide emissions produced by propane forklifts when compared to electric models

FOR MORE INFORMATION

To learn more about how propane can benefit your forklift fleet, visit **Propane.com/forklifts**.

> **"What concerns me about electric right now is you don't know how long that battery is going to last. With propane, you don't have to worry about that because you can just put another tank on."**
>
> **RON BROWN**
> FREEMAN SENIOR VICE PRESIDENT OF DELIVERY AND BRAND EXPERIENCES

Propane Education & Research Council

1140 Connecticut Ave. NW, Suite 1075 / Washington, DC 20036
P 202-452-8975 / F 202-452-9054