ExchangeWire deep dive
The business of media, marketing and commerce

Deep Dive: A Guide To Environmental Sustainability in Digital Advertising

In association with sharethrough

CONTENTS

INTRODUCTION

When it comes to evaluating sources of carbon emissions, we usually think about oil companies, the car industry, airlines, or any large factories emitting a big volume of smoke. But did you know that the Internet emits the same volume of carbon as the civil aviation industry? In fact, more than 60% of consumers are unaware that browsing online generates carbon emissions.

Depending on the analysis, the Internet represents between 2% and 4% of total carbon emissions on the planet. And, of course, online advertising represents a noteworthy part of those carbon emissions, with one ad impression representing 1g of carbon on average.

In this Deep Dive, we will break down the carbon emissions of online advertising and review what solutions could lead to reducing them.

Internet Emissions = Aviation Industry

The internet is responsible for 2% of total global CO_2 emissions, which is equivalent to the global CO_2 emissions from the aviation industry.

Source: OVO Energy, "The Carbon Footprint of the Internet: What's the Environmental Impact of Being Online?", February 2022

2%
Emissions From the Internet

VS

2%
Emissions From the Aviation Industry

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"One ad impression represents 1g of carbon on average."

Part 1—

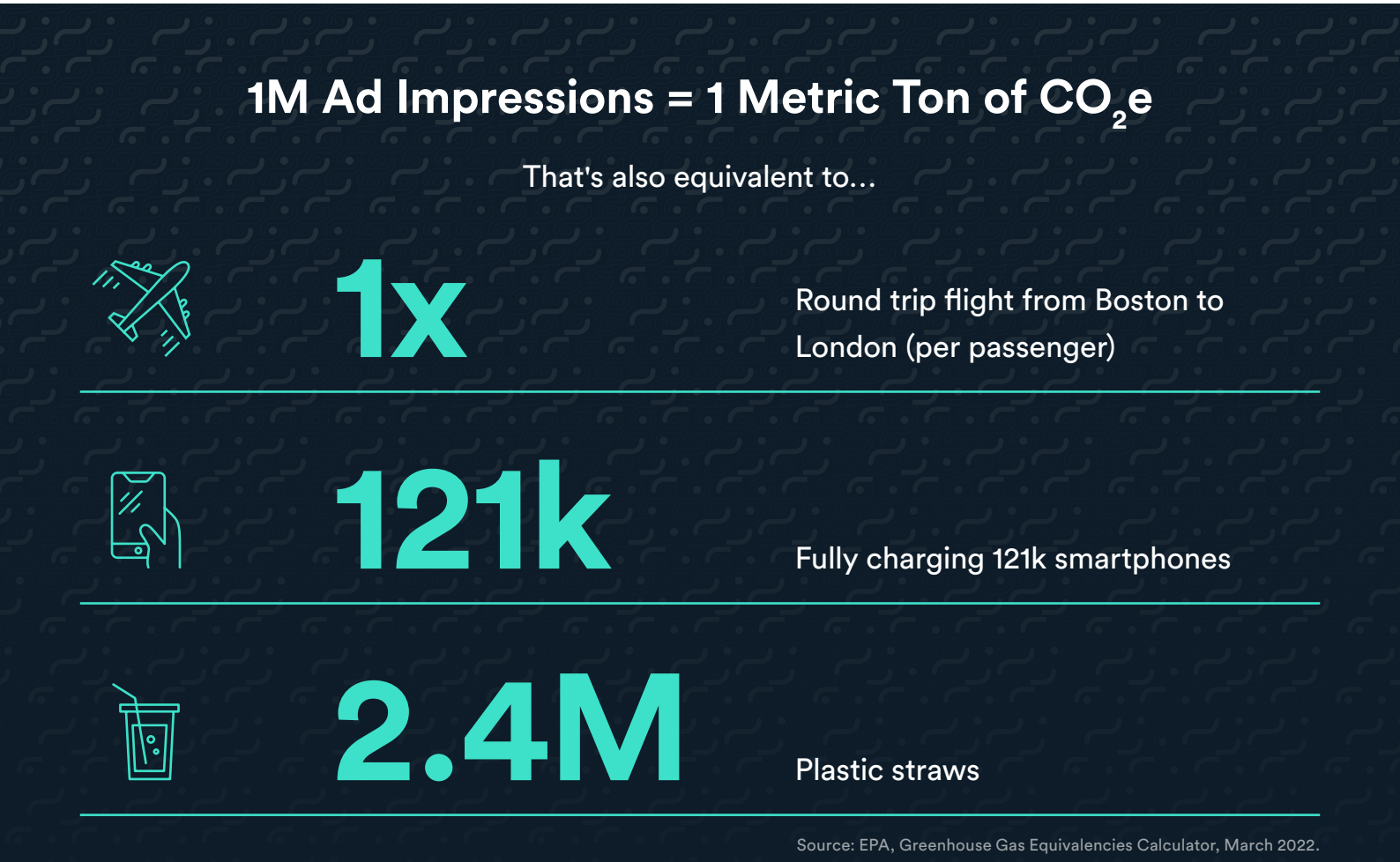
Understanding carbon emissions in digital advertising

UNDERSTANDING CARBON EMISSIONS IN DIGITAL ADVERTISING

If the Internet accounts for about as much carbon emissions as the aviation industry, and the digital advertising supply chain is responsible for some of the energy and data required to load a site, let's first put in perspective how much carbon is emitted from a standard digital advertising campaign.

The energy required to serve one million ad impressions is the equivalent to about one metric ton of CO2 emitted. That is equivalent to the emissions produced by:

- One return trip from Boston, Massachusetts, US to London, England, per passenger
- Charging 121,000 smartphones to full battery
- Almost two and a half million plastic straws



And when you consider that most ad campaigns are delivering millions of ad impressions, you start to see how quickly these emissions can add up.

How does digital advertising cause carbon emissions?

If carbon emissions on the Internet do not emanate from tangible sources like automobiles or factories, then where do they come from? To understand the full breadth of where these emissions originate from, you first have to understand how, in all industries, emissions are bucketed into three types, which are known as Scopes.

Scope 1 and 2 emissions are caused by an organisation's business activities: Scope 1 emissions are direct emissions, *generated* by a company's buildings, facilities and any owned vehicles; Scope 2 emissions are created by the energy consumption and travel from the power grid that is required *to power* a company's buildings, facilities, and vehicles.

Scope 3 emissions are generated by a company's supply chain and account for more than 90% of an organisation's total carbon waste for the digital Advertising industry. Unlike the dark plume of smoke coming out of a car's tailpipe, the carbon emissions generated in digital advertising are harder to see. To better understand Scope 3 carbon emissions in digital advertising, we need to take a deeper look at the programmatic supply chain.

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The main sources of digital ad emissions

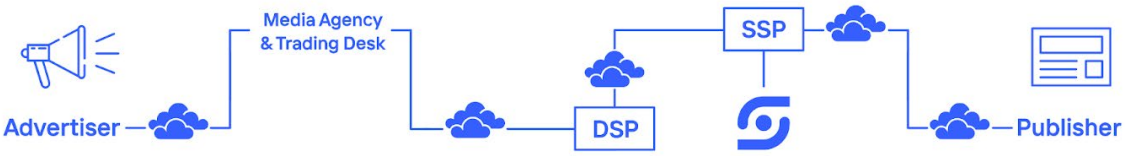
The sources of Scope 3 carbon emissions in digital advertising can be split into two distinct groups: the actions and the programmatic supply chain.

Actions

- Server power
- Device power
- Data transmission
- Content production
- Ad production
- Ad delivery
- Content and ad consumption

Programmatic Supply Chain

- Consumers
- Publishers
- SSPs
- Ad servers
- Verification partners
- DMPs
- DSPs
- Agencies
- Brands



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“Unlike the dark plume of smoke coming out of a car’s tailpipe, the carbon emissions generated in digital advertising are harder to see.”

FOUR WAYS SCOPE 3 EMISSIONS ARE GENERATED IN DIGITAL ADVERTISING

To simplify how digital advertising causes Scope 3 carbon emissions, we can break down a typical day in ad tech into four parts:

1. The ad and content production

2. The user impression

3. The ad delivery

4. The performance reporting

1. The ad and content production

Whether a brand creates an ad in-house, or by hiring an agency and publishers to produce content that attracts users for advertisers and brands to reach, the content and ad production processes generate Scope 3 carbon emissions.

Using equipment like cameras, microphones, lights, and computers to assemble the creative assets; employees travelling to and from production sites; materials; and goods and services like catering or cleaning, all contribute to the total of Scope 3 carbon emissions in digital advertising.

2. The user impression

When a user lands on a publisher's site, whether using a smartphone, computer, or a smart TV for CTV content, their device is drawing power from a battery or outlet, which produces carbon waste. Loading up the content to their device means transmitting data, and the size of the content affects how much carbon waste is generated.

The user impression makes its way through the programmatic supply chain – starting from the publisher's servers, it stops along the way at the SSP's servers until it goes on to reach the advertiser's or brand's DSP server and their computer. While targeting that user impression, carbon waste is created from powering the servers that run the AI that matches the user with an ad and from the transmission of data.

Additionally, the servers that facilitate industry-wide components like header bidding, third-party vendors like verification partners, and multiple network requests from SSPs to multiple DSPs create carbon waste that contribute to a company's Scope 3 emissions.

3. The ad delivery

Once the user impression is matched with an ad, the ad makes its way through the programmatic supply chain to reach the user. The amount of Scope 3 carbon emissions released during this process depends on the type and size of the ad; smaller file sizes, like images, release less carbon waste than videos. Large-sized files require higher data transmissions and power as the ad travels between servers.

When the ad reaches the user's device, the processor works to display the publisher's site content as well as the ad while emitting Scope 3 carbon emissions.

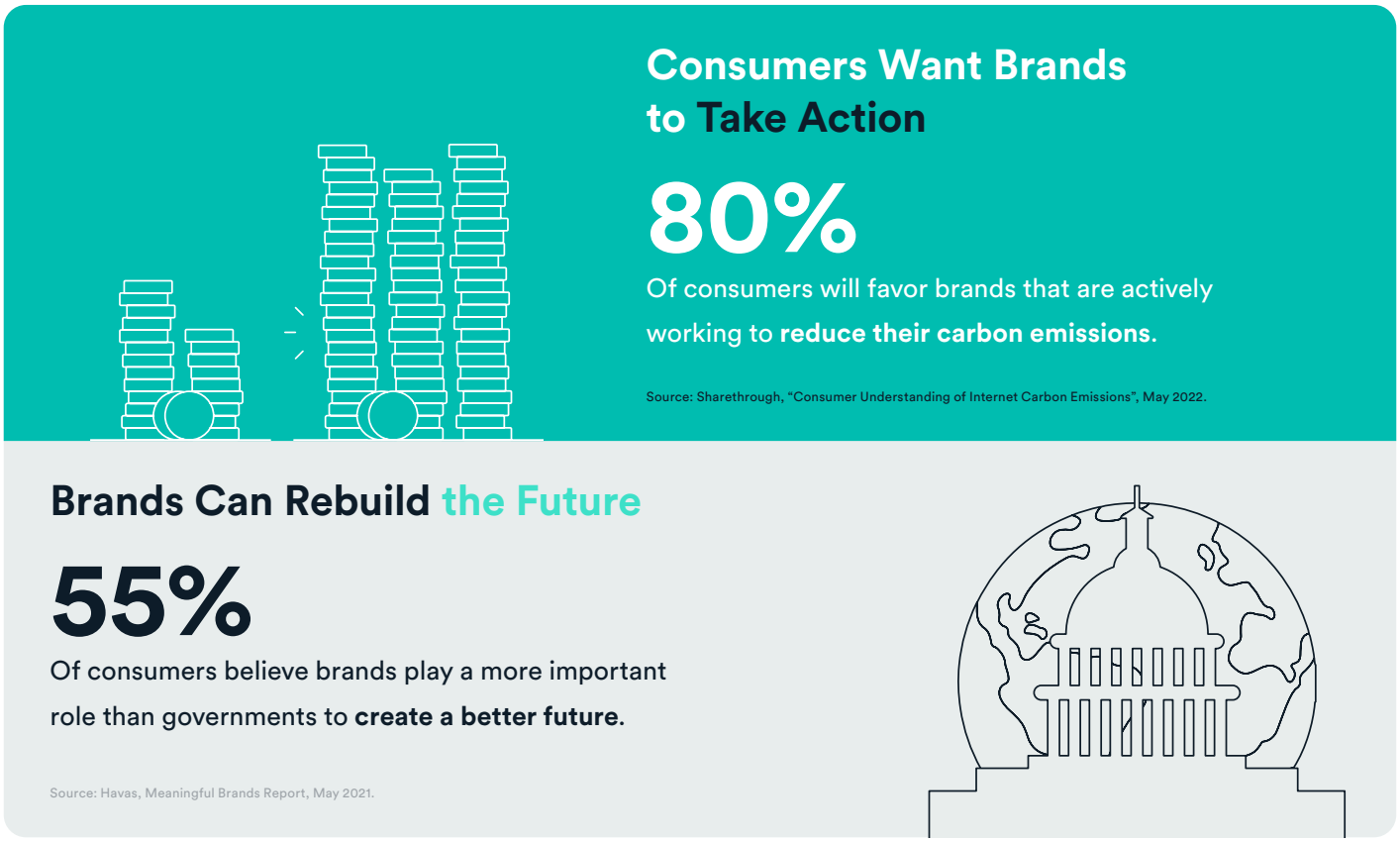
4. The performance reporting

After the user takes action, whether it is clicking through to the ad's offering, making a purchase, or signing up for a mailing list, the ad performance is captured and sent from the publisher to the SSP, then to the DSP. In this process, the servers that store and send the performance data cause carbon waste that falls under a company's Scope 3 emissions.

Finally, we can see how a typical ad generates carbon emissions. Powering numerous servers, transmitting massive amounts of data, running algorithms and AI in the background that facilitate the processes, all contribute to a company's Scope 3 emissions and the carbon waste generated by the programmatic supply chain.

HOW ARE BRANDS, AGENCIES, AND AD TECH COMPANIES RESPONDING?

Consumers are ready for brands and organisations to take initiative, as evidence from a recent Havas Meaningful Brands report that 55% of consumers believe brands play a more important role than governments in creating a better future. Additionally, our Sharethrough study on Consumer Understanding of Internet Carbon Emissions revealed that 80% of consumers will favour brands that are actively working to reduce their carbon emissions.



The good news is that a number of organisations in the ad tech space understand the extent of our industry's emission problems and have started taking steps and pledges to reduce or negate their carbon footprint.

Agencies

WPP has pledged to reach net-zero emissions by 2030 by first reaching net-zero Scope 1 and 2 emissions by 2025 and then reaching net-zero Scope 3 emissions by 2030.

WPP, along with OMG, Havas, dentsu, IPG and more, are also backing industry initiatives such as Ad Net Zero, which also aims to help the ad industry reach net-zero emissions by 2030 and the #ChangetheBrief Alliance, a not-for-profit initiative organised by Mindshare to bring together media, creative, design, PR firms and their clients to better support sustainability initiatives.

Brands

Many brands have also committed to achieving net-zero Scope 1 through 3 emissions by 2030 or later, including Disney and GSK (who have committed to net-zero by 2030), Unilever (by 2039), and Dell and Danone (who have committed to a 50% reduction in Scope 1, 2 and 3 by 2030 and net-zero by 2050). Science Based Targets has a helpful dashboard to track which organisations have committed to net-zero emissions.

Ad tech companies

A number of ad tech companies are not just making pledges to reach net-zero, but also using their technological expertise to create tools to help reduce carbon emissions across the whole digital supply chain.

Scope3, for example, specialises in helping any company within the advertising ecosystem measure the amount of carbon emitted from their ad delivery. The company also aims to help reach net-zero emissions by providing opportunities to invest in equivalent carbon removal projects through their Green Media Products.

Sharethrough partnered with Scope3 and became the first SSP to offer a Green Media Product, called Green PMPs, which is a turnkey way for advertisers to measure and achieve net-zero emissions from display, video, and native impressions. Ads delivered on Sharethrough Green PMPs also include a green icon, similar to the ad choices icon, that leads to a site built to educate consumers on how advertisers are reducing their carbon emissions.

Scope3 has also partnered with agencies, purpose-driven platforms like Good-Loop, and SSPs like us at Sharethrough to measure and reduce the carbon footprint of ads.

Companies like SeenThis are also aiding in the fight to reach net-zero by helping to lower the weight of data required to load ads, which leads to faster sites and lower emissions.

HOW YOUR ORGANISATION CAN REDUCE CARBON EMISSIONS

Knowing where to start reducing carbon emissions can be overwhelming. In addition to some of the resources listed in the previous section, here are four steps that have been most successful for organisations who have started addressing their carbon footprint.

1. Measure

a. Set a baseline goal for what you hope to achieve, and record your current emissions and where they're coming from.

b. This will help further advance carbon reduction efforts by improving the precision and accuracy of measurement.

2. Commit

a. Commit to lowering carbon emissions and other greenhouse gases by taking part in Ad Net Zero or Science Based Targets for further accountability.

3. Allocate

a. Allocate a portion of your ad spend towards lowering your carbon emissions.

b. Quality > Quantity when it comes to ad placement and publisher selection.

c. Utilise Green Media Projects like Sharethrough's Green PMPs that neutralise carbon emissions.

4. Refine

a. Evaluate your initiatives to determine what more can be done to reduce emissions.

b. Include carbon measurement in your supply path optimisation strategies to further focus on the most direct supply paths that naturally reduce emissions by removing resellers

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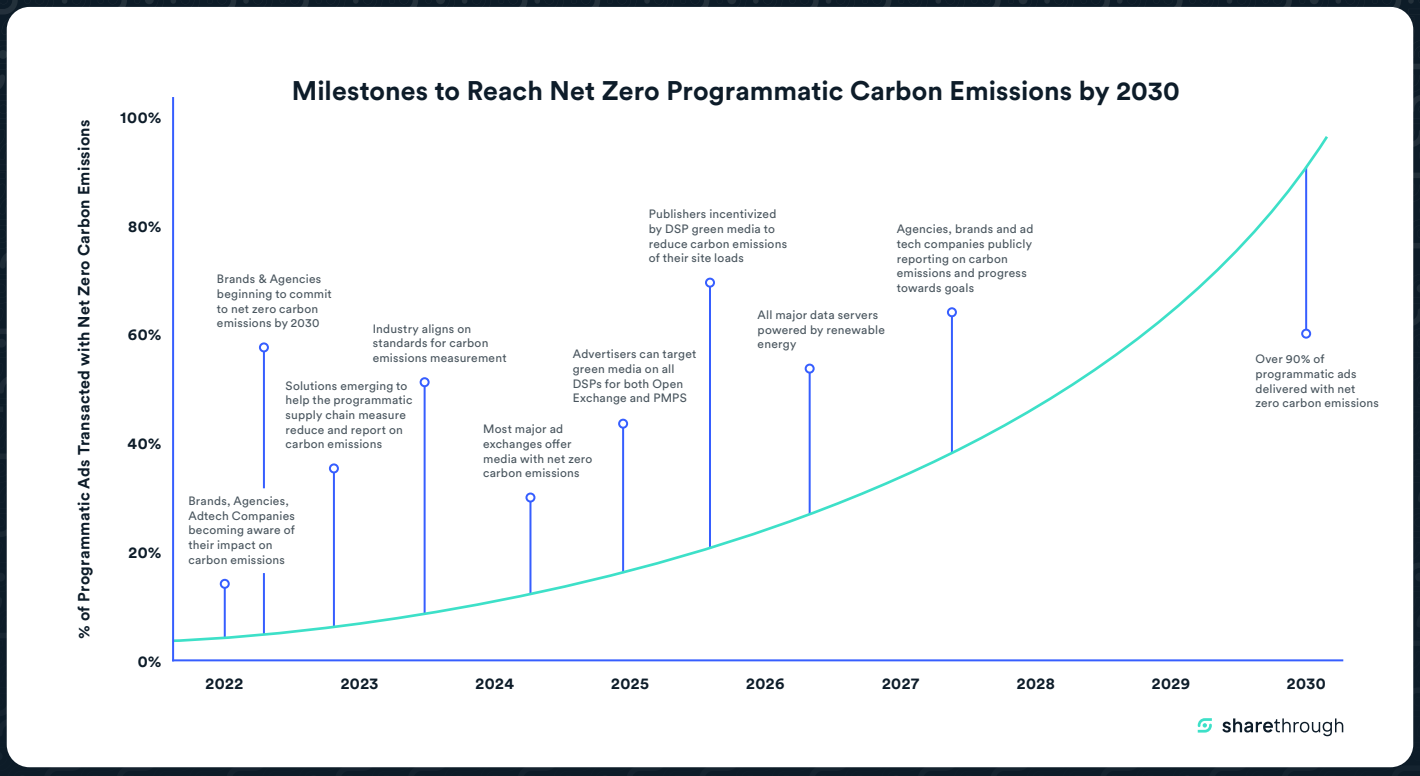
Part 2—

Milestones to reach net-zero programmatic carbon emissions

Now that we understand why and how the digital ad industry generates carbon emissions and knowing that brands, agencies, and ad tech companies are starting to commit to reaching net-zero emissions, what will it take to achieve the lofty goal of reaching net-zero carbon emissions by 2030? In the following graph and timeline, we break down the most important milestones needed to achieve near industry-wide net-zero emissions by 2030. The key of each of these milestones is accountability.

While everyone in the advertising supply chain needs to get on board, the most impact on driving industry-wide change will come from those with the most buying power: advertisers. Advertisers can use their buying power to prioritise spending with partners and publishers that are actively reducing carbon emissions. The good news is, many advertisers are starting to request solutions and carbon reduction from their partners. As this spreads to more advertisers, the goal of net-zero carbon emissions by 2030 will become very much attainable.



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Part 3—

How advertisers are reducing carbon emissions while improving performance

In order for carbon-reducing solutions to reach scale in the digital advertising space, two main criteria must be met: the solutions must be easy for ad buyers to execute and, at minimum, have no negative impact on advertiser performance. These were the two focal points of the industry's first Green Media Product that we built at Sharethrough in partnership with Scope3. What follows is an overview of the solution and a first look at promising initial results that we hope both advertisers and other ad tech companies will adopt and iterate on so that the digital advertising industry can reach net-zero emissions by 2030.

Green PMPs: An industry-first solution to deliver net zero carbon emissions

To achieve the first goal of creating a turnkey way for advertisers to deliver campaigns on SSPs with net zero emissions, the Sharethrough team created an integration with Scope3, an organisation that specialises in measuring the amount of carbon emitted from ads delivered across the internet. This integration allowed Sharethrough to track and report on the carbon emissions from all the thousands of quality publishers, DSPs and other partners involved in the advertiser supply path.

With the integration in place, Sharethrough curate Green Private Marketplaces (Green PMPs) that automatically allocate a portion of ad spend to fund high-quality carbon compensation initiatives such as reforestation, direct air capture, and carbon soil storage. As a result, the total carbon emissions from every ad delivered on Sharethrough's Green PMPs are measured through Scope3's supply chain emissions tracking and the equivalent amount of CO_2e is removed from the environment via high-quality carbon removal projects.

To execute, ad buyers can either search "Green PMP'' in their DSP's deal library, choose the deal that fits their campaign goals and start running video, display and/or native ads with net-zero carbon emissions, or they can work directly with Sharethrough to curate custom Green PMPs that are tailored to their KPIs, audience, contextual signals and more.

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Applying consumer research to improve performance

Sharethrough's expectation for ads running on Green PMPs was that performance would, at minimum, be on par with the rest of our exchange but, in true Sharethrough fashion, the company wanted to study consumer insights to see if any opportunities existed to further improve performance. Sharethrough research study on Consumer Understandings of Carbon Emission revealed that while 60% of consumers were unaware that browsing the internet generated carbon emissions, 80% were more likely to favour brands that are actively working to reduce their carbon emissions.

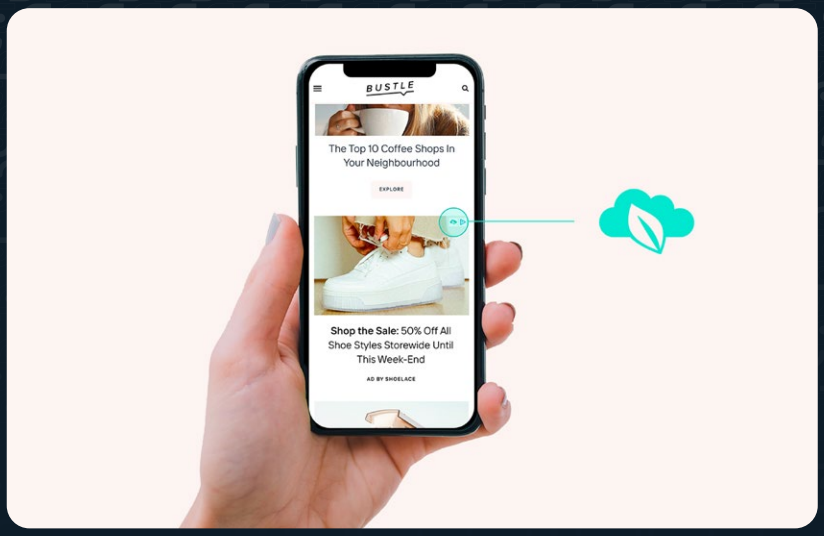
Most Consumers Not Aware of Their Digital Footprint

6 out of **10**

Users **were not aware** that navigating the internet generates carbon emissions.

Source: Sharethrough, "Consumer Understanding of Internet Carbon Emissions", May 2022.

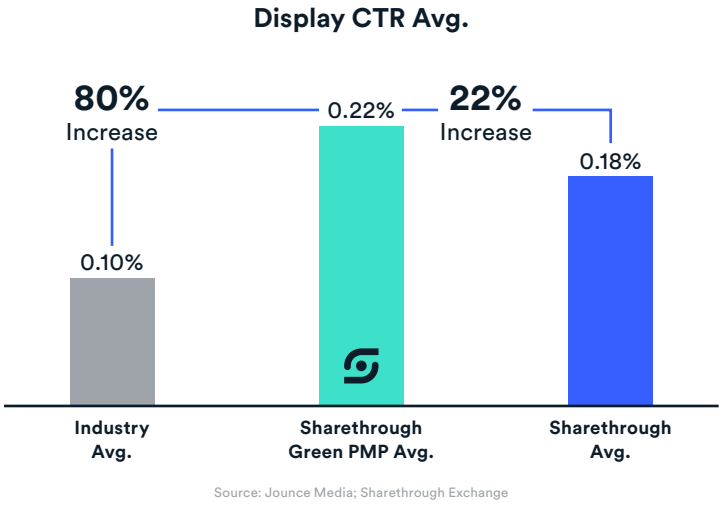
This means consumers need educating both on how their internet usage generates carbon emissions and on which brands are doing their part to reduce that impact. A solution to cover both needs was to create a green icon, similar to the ad choices icon, that is included on any ad running on a Green PMP and clicks through to a site built to inform consumers about how advertisers are reducing their carbon emissions.



Ads running on Green PMPs include a green icon which links users to more information regarding the initiative

Green PMPs improve performance while reducing carbon emissions

The results from the first couple months of running ads on Green PMPs are very promising. The combination of clean supply paths, the green icon, and delivering net-zero emissions is actually *improving* the performance of advertisers' standard creatives. Display ads running on Green PMPs are delivering a 22% higher CTR than the Sharethrough average and an 80% higher CTR than industry benchmarks.



Source: Jounce Media; Sharethrough Exchange

The ease of use and performance increases are contributing to more and more advertisers running on Green PMPs, with over **3,400 advertisers** live to date. As a result of the launch of Green PMPs in June 2022, over 22 tons of CO_2e will already be offset — which is equivalent to negating the effect of fully charging over 2.6 million smartphones or driving 110,000 thousand kilometres in an average gasoline car.

A Net-Zero Carbon Emissions Future Is Possible for Advertising

The early success of the first Green Media Product is a very promising sign that such solutions and actions can scale quickly through the advertising industry. If running all ads on net-zero supply lines like Green PMPs are as easy to execute as regular digital ads and they improve performance, very little should hold any advertiser back from getting started today. The more the industry shares these types of solutions and case studies, the faster we will achieve a net-zero carbon emissions industry and do our part to slow the impacts of climate change.

ABOUT SHARETHROUGH

Sharethrough is one of the top global independent omnichannel ad exchanges. Committed to preserving an open internet with independent and accessible content funded by quality advertising, we are building a sustainable advertising ecosystem for journalists, content creators and app developers, by connecting publishers and advertisers with true technology innovation supporting all ad formats, devices, and user experiences.

To learn more, visit www.sharethrough.com

ABOUT EXCHANGEWIRE

ExchangeWire provides news and analysis on the business of media, marketing and commerce with a specific focus on data and technology. We offer actionable market intelligence on the trends and innovations that are shaping the media, marketing and commerce industries.

We're always interested in any technology and business-related news globally, and in particular across EMEA and APAC. Relevant companies are encouraged to get in touch. We're also interested in hearing from PR people working with companies in any of the areas named above.