



REDUCING **MEDIA** EMISSIONS:

Ad Net Zero Australia's
practical guide towards a
lower-carbon media plan

**AD
NET
ZERO** 
ALL FOR NONE

HOW TO USE THIS GUIDE TO REDUCE YOUR NEXT CAMPAIGN'S ENVIRONMENTAL IMPACT

This guide is designed for media practitioners within the advertising industry, regardless of sustainability expertise, looking to reduce their environmental impact.

It provides practical steps to consider, illustrated with case studies and supported by further links and resources. These have been compiled from the collective expertise of Ad Net Zero's supporters, representing real-world experience of decarbonisation in action.

There is no single silver bullet to reduce emissions from media. Select the tactics that work best for your brand, campaign and media plan.

Most important is to take the first step towards a lower-carbon future.



THIS GUIDE SUPPORTS **ACTION 03** OF AD NET ZERO'S ACTION PLAN

The Ad Net Zero Action Plan: Advertising's decarbonisation roadmap

Action 01

Future-proofing your business

Action 02

Reduce emissions from
advertising production

Action 03

Reduce emissions from media
planning and buying

Action 04

Reduce emissions through
awards and from events

Action 05

Using the work to support
more sustainable behaviours

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emissions come from:**
Understanding media's
environmental impact

2. How to start reducing :
Six actionable steps you can
take now, with case studies
showing this in action

3. Further resources:
Ad Net Zero and third-party
tools and references to
support your work

WHERE DO MEDIA'S EMISSIONS COME FROM?

At first thought, you might not realise that media has a significant impact on the environment. With digitisation, many channels no longer have the same scale of physical footprint, such as newspapers and posters being printed, distributed, and disposed of at the end of the campaign.

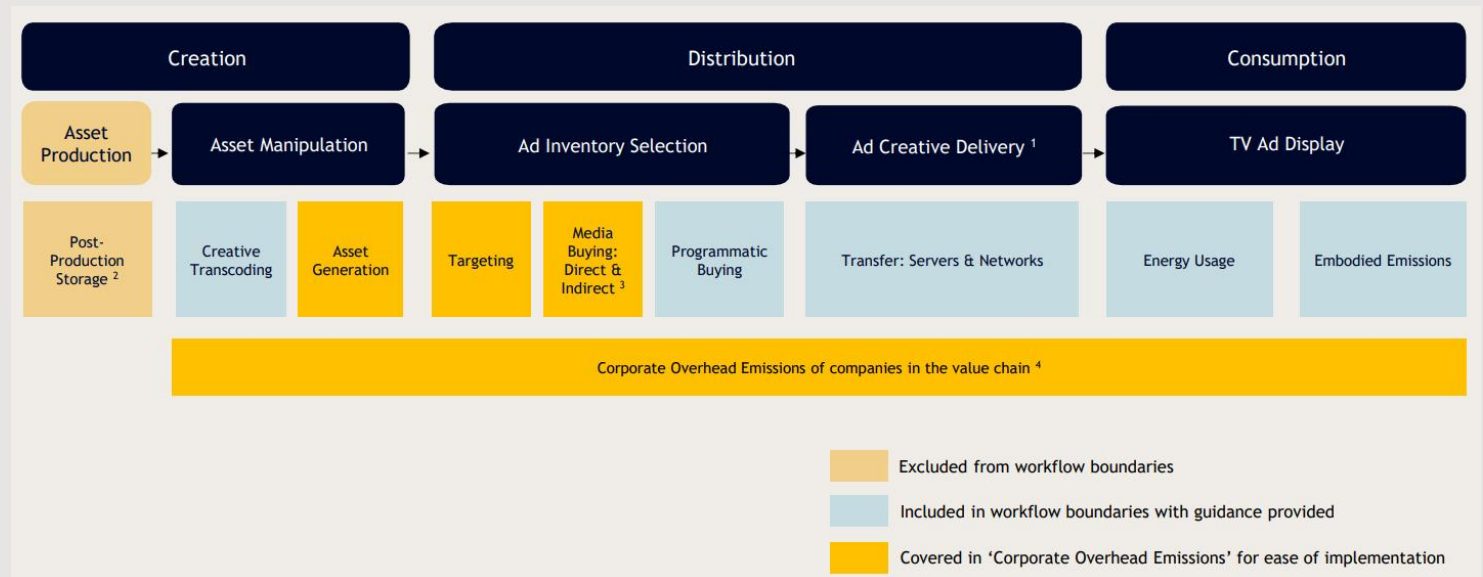
Yet in reality, digital media's supply chain contributes huge carbon emissions, in the form of energy-hungry servers.

This shows how the first step in reducing media's emissions is to understand where the problem lies.

To help with this, Ad Net Zero has built the **Global Media Sustainability Framework** or [GMSF](#). This breaks down the sources of emissions to consider at each stage in the lifecycle of a campaign, from the creation and storage of assets, through to their distribution and consumption by the end viewer.

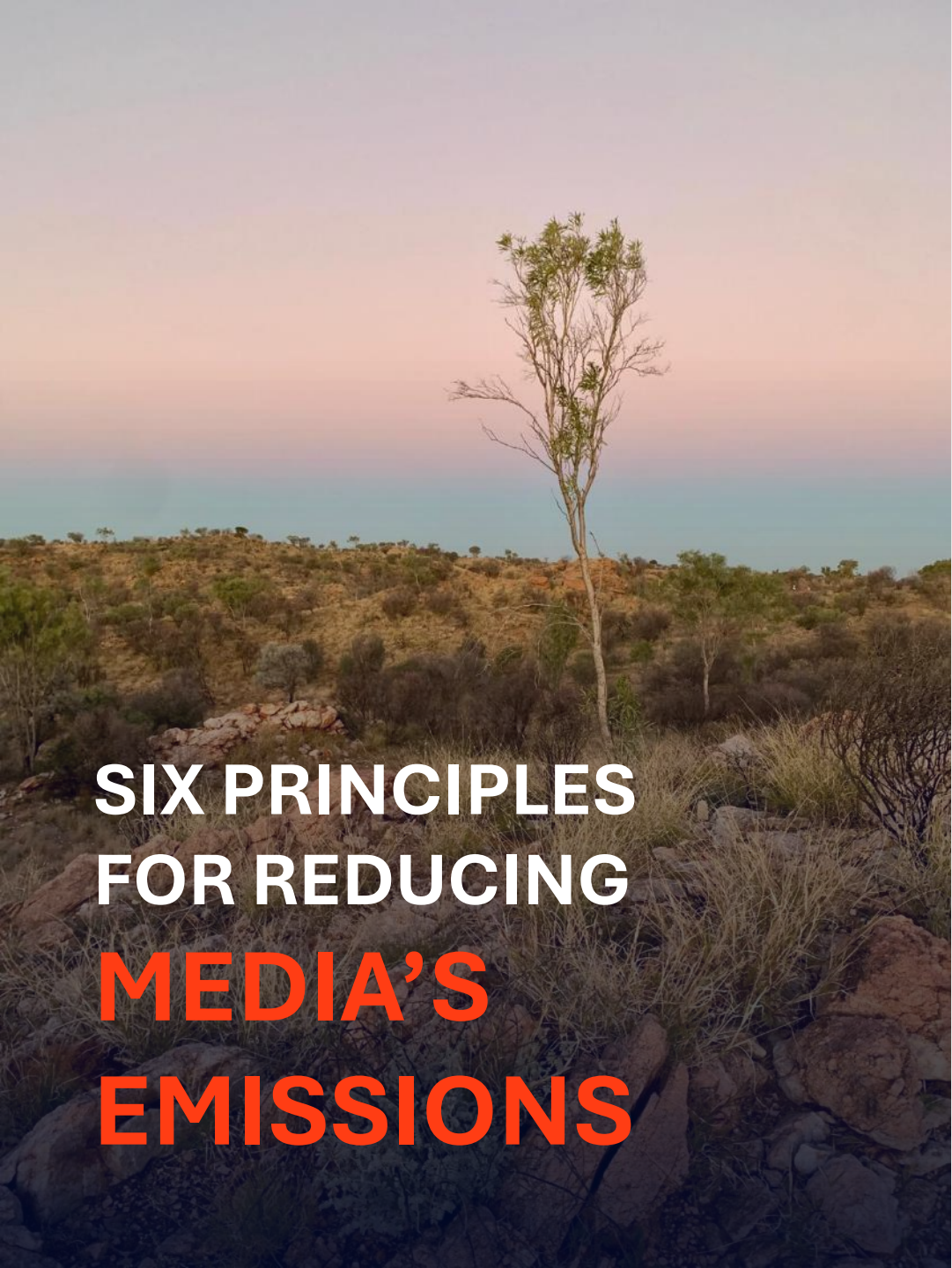
These elements vary considerably between channels. For example, a large proportion of the emissions for digital comes from **Distribution** technology, particularly within the programmatic supply chain. In contrast, much of the impact of Out-of-Home occurs at the **Consumption** point, in the form of energy used to run or light the panel.

To illustrate this, here is an example showing the considered sources of emissions within a TV (including video) buy:



2% - 4%

OF ALL GREENHOUSE GAS EMISSIONS
GLOBALLY COME FROM ADVERTISING,
WITH THE MAJORITY FROM MEDIA.
THAT'S SIMILAR TO THE
AVIATION INDUSTRY



SIX PRINCIPLES FOR REDUCING MEDIA'S EMISSIONS



Gather the right data to make informed decisions



Streamline assets to only what is required



Improve quality, lower emissions



Remove waste from your media supply chain



Deliver only what's needed, when it's needed



Partner to innovate solutions

1. GATHER THE RIGHT DATA TO MAKE INFORMED DECISIONS



Source emissions data to understand the impact of each element of your plan.

This will enable you to identify emissions hotspots and opportunities for reduction, as well as benchmarking progress.

START MEASURING THE WHOLE PLAN

The **Global Media Sustainability Framework (GMSF)** has made it simple for all to measure the emissions from their media plan. It is a free, voluntary set of industry standards to help industry measure and reduce these emissions.

You can either **apply the formulae and data guidance directly** to calculate emissions yourself, or work with an agency or third-party calculator.

Use this data to **identify emissions hotspots** within the plan and focus your efforts, as well as to benchmark, set targets and measure progress.

Explore the GMSF in more detail on the following page.

BUILD A BALANCED SCORECARD

Consider a balanced scorecard in evaluating media investment choices. Utilise an array of metrics spanning business, media and campaign outcomes alongside sustainability, and **avoid binary decisions** of business vs planet.

To enable a balanced evaluation, it's important to use **activity-based data** wherever possible. This is data collected at the level of each individual media activity or ad product, rather than aggregated estimates.

It can also help to create **new metrics** to inform decisions, showing environmental impact compared to other metrics. A good example is **gCO2e per outcome**. This measures the grams of CO2-equivalent (a standard measure of emissions) needed to generate outcomes such as reach point, page view or even end acquisition.

PROVIDE EMISSIONS TRANSPARENCY

Share emissions data with all stakeholders, so that environmental impact can be factored into decision-making. Consider bringing emissions data into any dashboard, to make it easy to access whenever needed.

Build in **shared accountability** for all by identifying a starting benchmark for activity.

Set targets, so that everyone is accountable, ensure they are achievable and identify early any conflict with other measures of success such as audit guarantees.

SPOTLIGHT: THE GLOBAL MEDIA SUSTAINABILITY FRAMEWORK (GMSF)

A playbook for robust, consistent activity-based data collection

In simple terms, the GMSF provides a consistent method to calculate **where emissions occur** across media activity, and a structured approach to calculate these emissions over time.

It means that all calculators (and anyone calculating media's emissions) follow a **consistent, industry-agreed standard**. Prior to this framework, estimates from different sources could vary by between 6x and 20x difference.

Crucially, the GMSF facilitates **activity-based** data. This is data collected at the level of individual media activities or ad products, enabling more accurate emissions calculations than aggregated estimates.

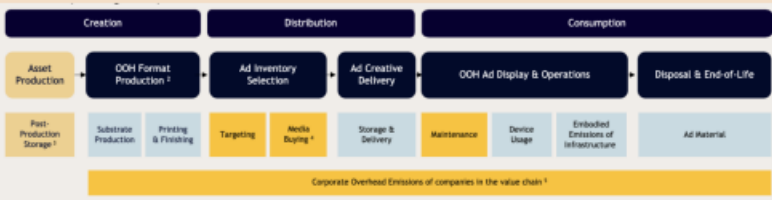
Only with activity-based, granular data can a media practitioner make informed decisions to reduce emissions from the plan, without compromising spend or performance.

[ACCESS THE GMSF QUICK START GUIDE HERE](#)

THE COMPONENTS OF THE GMSF

Channel Emissions Workflow

Media campaigns go through 3 major lifecycle phases: creation, distribution and consumption, and several sub steps (or unit operations). These are defined in our channel specific workflows, which have clear boundaries to capture GHG emissions across different media channels.



Channel Emissions Formulae

The unit operations use energy or resources, creating GHG emissions. These are represented by mathematical formulae which require three different data inputs.

$$\text{Distribution_Ad_Creative_Delivery}^1 = \frac{\text{Classic OOH, manufacturing to storage}^{\text{tonnes}} \times \text{total_mass_carried}^2 \times \text{trip_distance, manufacturing to storage}^3 \times \text{country (km)}}{\text{EF_transportation, vehicle type, shared, manufacturing to storage (kgCO}_2\text{e / t.km)}}$$

Legend:
• required inputs
• default values
• emissions factors

Data Guidance

Makes the framework actionable.

Emissions Data Request Form

A form to collect campaign data

Phase	Step & sub-step	Data type	Parameter of operationalised formula	Expected unit
Creation	Post-production storage	Required input	Total mass carried or location assets used for campaign	kg
		Required input	Distance travelled or road stress	km/tonne/km
		Required input	Distance travelled or CO ₂	km/tonne/km
		Required input	Distance travelled or fuel	km/tonne/km
		Required input	Distance travelled or fuel	km/tonne/km
Distribution	Storage impact of hardware	Emissions factor (in GMSF database)	Storage impact of hardware	kgCO ₂ e/kg
		Emissions factor (in GMSF database)	Storage impact of LTO	kgCO ₂ e/kg
		Emissions factor (in GMSF database)	Storage impact of fuel	kgCO ₂ e/kg

Emissions Data Hacks

Defaults when data is missing

DEFAULT
(No data available)



Increasing levels
MORE ACCURACY
MORE GRANULARITY

Level 0

Level 1

Level 2

Level 3

Level 4

Emissions Data Sources

Freely available database including CO₂e factors

Name	Unit	Value	Source
trip_distance manufacturing to storage	Kilometres (km)	200	See GMSF OOH Emissions Factors
EF_transportation manufacturing to storage	kgCO ₂ / t.km	7.90E-01	
average_distance_fleet_per r_format storage to sites	Vehicle.km	0.7	
EF_transportation storage to sites	kgCO ₂ / vehicle.km	2.56E-01	



CASE STUDY:

WPP MEDIA

Digital Sustainability Initiative

[READ MORE ABOUT THIS WORK HERE](#)

DATA LED CARBON REDUCTION AT SCALE

Launched in 2023 under WPP Media's broader sustainability strategy 'Alpha', the Digital Sustainability Initiative began by **measuring carbon emissions** across more than 40 clients, to set benchmarks and identify priorities.

Since then, this data-driven approach has evolved from measurement and manual mitigation **to automated reduction**, optimising media buying at scale using granular emissions data to inform decisioning. This reduces the carbon footprint of digital advertising while maintaining or improving campaign performance.

The data was used to fuel an **Australian-first algorithm**, which identifies and prioritises low-emission, high-performing inventory. This not only reduced CO2 emissions by nearly a fifth across 13 campaigns, but also maintained or improved client KPIs, demonstrating that sustainability and profitability are not mutually exclusive.



WINNER:
Industry Change
MFA Awards 2025

Results

-19%

Reduction in CO2 emissions

24

Campaigns covered to date

≥

Same or greater
campaign performance

2. STREAMLINE ASSETS TO ONLY WHAT IS REQUIRED



Production, storage, transfer and end delivery of assets all contributes significant emissions to a campaign.

Streamline this wherever possible without impacting the campaign, to reduce the significant energy required for these processes.

REDUCE, REUSE & RECYCLE ASSETS

Many advertisers create more assets than they will use, and some assets won't reach wear in let alone wear out, based on available media budgets.

Instead, consider **designing more evergreen ad campaigns** or **upcycling** existing ads using custom end frames and new CTA overlays.

Running **existing creative for longer** reduces the emissions from production and distribution of assets.

At the same time, ensure you only **store the assets you really need**. Storing assets 'just in case' or across multiple locations uses significant energy, particularly when multiplied across large numbers of assets.

Finally, when assets are physically printed for OOH executions, consider technology that allows **the skins to be reused and recycled** wherever possible.

STREAMLINE ASSET PRODUCTION

Although not a core media consideration, don't forget that production of assets consumes energy too.

This applies to any type of 'asset' so consider the impact of **production in brand-funded content** too, as this is often considered as part of a media plan.

In Australia, measuring emissions from advertising production is free using the tools from [AdGreen](#), including data to understand how the **use of AI impacts emissions**.

Whilst AI is often seen as having a negative environmental impact, [WPP's Sustainability Report](#) shows that **AI-enabled shoots saved over 80%** vs traditional shoots.

COMPRESS AND CONSIDER FORMATS

Compressing and shortening digital creative assets - such as video files for TV and BVOD - can significantly lower campaign emissions by reducing file size and data transfer.

Optimising formats and lengths to suit viewing devices, like mobiles and connected TVs, helps cut unnecessary energy use while maintaining quality and effectiveness.

Running **shorter video ads** (15" vs 30"), can significantly reduce a campaign's footprint, where possible.

Even small adjustments to the **creative's brightness** can contribute significantly. Digital screens use less energy to display darker colours, and switching an ad to 'dark mode' can [reduce its energy consumption](#) by up to 74% compared to the standard version.

3. IMPROVE QUALITY, LOWER EMISSIONS



Every served ad served carries a carbon cost, whether it drives an outcome or not.

By stripping out wasted frequency, made-for-advertising sites and low-quality placements, you cut the emissions baked into ads that were never going to perform.

The result: a leaner, lower-carbon plan.

REMOVE ELEMENTS THAT DON'T PERFORM

Treat optimization as a continuous reduction exercise. Identify and remove placements, sites and channels that are **dragging on performance** - they're often the same ones emitting the most carbon per result.

The clearest example is **Made-for-advertising sites (MFAs)**, built to carry as many ads as possible, with high ad load, low attention, and often higher emissions per impression than the average web page. Build MFA exclusions into every campaign and review / refresh these lists regularly.

Low-quality formats with little or no viewability or attention go in the same bucket: low value to the campaign, full carbon cost to the planet.

[An analysis of over 500m impressions](#) by Scope3 showed this benefit in the data. They found that lower-carbon media campaigns drove 2.6% lower CPA and 52% higher CTR, whilst cutting emissions by 29%.

PRIORITISE QUALITY BONUS

Bonus inventory isn't really free, even when there is no fee, as every ad served carries a carbon cost. A \$20k Run-of-Site display bonus might look attractive on paper, but if half of it loads below the fold and never enters view, you're paying for emissions without driving results.

Push back. Ask whether the bonus could instead be delivered as premium or sticky, 100% in-view formats. The price may be higher, but effectiveness is higher and waste is lower.

The principle: **accept bonus that adds to the campaign, decline bonus that just adds to the load.**

CHOOSE METRICS THAT MATTER

Focus on metrics that show **true campaign success, not proxies**. Traditional metrics such as click-through-rate and similar can bake in waste with millions of served-but-ignored impressions for often minimal outcomes - and waste that has a carbon cost.

Where better measurement is available such as Marketing Mix Modelling and brand lift studies, look at the **correlation between your buying objectives and the actual business result**. Does higher attention drive better outcomes than VTR? Does viewable reach beat raw reach?

Prioritise the metric that drives the business result, and the campaign will get leaner on its own.



CASE STUDY:

HEARTS & SCIENCE AUSTRALIA

Removing waste to
increase performance

[READ MORE ABOUT THIS
WORK HERE](#)

LOWER WASTE, BETTER OUTCOMES

Hearts & Science partnered with Scope3 and Index Exchange to remove low-quality placements and sites from their campaign, including rigorous inventory and ad quality standards, auditing every site to prevent fraud, eliminate made-for-advertising (MFA) sites, and ensure brand-safe, quality inventory.

Additionally, they utilised Scope3's Green Media Product (GMP+) inventory, which prioritise lower-emission inventory and automatically block inefficient media, ensuring high quality and lower-carbon advertising.

Scope3's emissions modelling uses the IAB Tech Lab's global placement ID (GPID) framework to provide very detailed, per-placement insights. It tracks refresh rates, lazy loading, and other efficiency factors that affect the carbon footprint of an ad placement. With this data-driven approach, Hearts & Science could refine its media mix without sacrificing results.



WINNER:
Campaign Ad Net
Zero Awards 2025

Results

-70%

Lower cost per land

13%

Higher Click-Through Conversion Rate

51%

Lower CO2e per impression

4. REMOVE WASTE FROM YOUR MEDIA SUPPLY CHAIN



By actively reviewing the formats, ads and intermediaries that don't perform, you can remove wasted carbon and improve campaign effectiveness.

Win-win for your plan *and* the planet!

ACTIVELY AUDIT YOUR DIGITAL SUPPLY CHAIN

Interrogate the supply paths used to buy inventory from publishers and ensure that you are not using **multiple paths or unnecessary intermediaries** to access your preferred supply.

Limiting the purchase of **multi-hop impressions** is good practice for buyers, and direct PMPs are one way to combat this. Review the intermediaries involved and minimise the number of hops in the supply chain.

Best practice in the GMSF is currently to use *ads.txt* line counts as a proxy for calculating supply paths. However, there is a draft [proposal](#) to enable path-level, activity-based intensity reporting from each ad tech platform – due to be finalised in Q3 2026.

BID ONLY ON ADS THAT WILL BE SEEN BY HUMANS

On the open exchange, the simplest emissions lever is to bid only on inventory that is likely to be seen.

Pre-bid viewability checks can help to prevent your DSP from bidding on ads likely to render below-the-fold or out of view.

As no active bids means no creative download, this cuts out both wasted spend and emissions of any ads served but never seen.

Recent industry studies show that pre-bid optimisation can **reduce both emissions and CPMs, whilst lifting attention**.

FILTER WHERE YOU CAN, BLOCK WHERE YOU CAN'T

Stop **unwanted impressions before they are bought**. Most verification partners sell pre-bid brand safety products that go beyond keyword blocklists with semantic analysis, contextual classification and curated avoidance categories.

Apply them across open exchange and private deals. **No bid = no creative downloaded = no impression rendered**, avoiding the full emissions chain.

For ads booked directly (where you can't pre-filter), live blocking still helps. If surrounding content changes, the verification tag swaps your creative for a blank slot. The impression is paid for, but the creative payload doesn't render, saving the largest data-transfer cost.

AVOID WASTED FREQUENCY

Set **limits on total impressions and frequency** to reduce activity once you reach diminishing returns.

Consider setting **threshold rules** to taper media consumption when objectives are met or efficiency drops.

Go a step further: **set a carbon emissions budget** for campaign and plan the formats and frequency within the limits.

DIGITAL DEEP DIVE: QUICK WINS TO MINIMISE WASTE

Every bid request requires computing power, even though most will never result in a trade. Cut your campaign emissions in programmatic activities by reducing the volume of requests that never reach decisioning engines, with these quick wins.



1. OPTIMISE SUPPLY PATHS

The same impression arrives via many redundant paths, each one a separate request to evaluate. Buy and sell through the fewest, most direct routes.

Prune low-value paths using `sellers.json` and the `SupplyChain Object`



2. SHAPE TRAFFIC PRE-AUCTION

Don't broadcast every impression to every partner. Predictive filtering sends a request only to bidders likely to respond; QPS feedback throttles low-yield flows.

Reduce request volumes that reach the bidders, with negligible revenue loss.



3. SCREEN OUT NON-BIDDABLE

Filter invalid traffic, ineligible geos or formats, and frequency-capped or brand-unsafe impressions before the auction opens.

Decisioning an impression that can never transact is pure waste of both infrastructure cost and emissions.

5. DELIVER ONLY WHAT'S NEEDED, WHEN IT'S NEEDED



Heavy creatives, preloaded assets and always-on delivery consume energy that often never reaches the user.

By streaming on demand, lightening asset weight and targeting delivery to cleaner conditions, you reduce the data transfer and power required to serve every ad without changing the campaign experience.

ADAPTIVELY STREAM, DON'T PRELOAD

Preloading landing pages and creatives means data is sent to the device whether or not it's ever seen, putting unnecessary load on servers and the end user's device.

Adaptive streaming delivers assets only when (and as) the user needs them, cutting wasted data transfer. This is particularly impactful with video assets.

Wherever possible, **choose adaptive streaming-based ad-serving and creative delivery** solutions, and consider turning off auto-play for video as a default where plausible.

OPTIMISE ASSET WEIGHTS

Data from IMPACT+ has found that on average, **optimising the asset weights reduces campaign emissions by 30%.**

This can be achieved by following the [IAB's guidance](#) on **LEAN (Lightweight, Encrypted, Ad Choice Supported, Non-Invasive)** creative formats, ensuring that rendered ads are as lightweight as possible, which results in less energy consumption.

Consider other common practices such as '**Lazy Loading**', which delays the loading of non-essential resources to improve pages load speeds, reduces bounce rates and drastically cuts the number of non-viewable ads which minimises the amount of energy needed to run a website.

Further details on similar operational best practices can be found in the IAB Australia sustainability guidance [here](#).

CONSIDER TARGETING LOWER-EMISSIONS DELIVERY

The end delivery point of ads can determine a large amount of the impact. Wherever you have flexibility, particularly with broad reaching campaigns, consider skewing part of the buy **towards lower-carbon delivery methods.**

For example, consider targeting digital delivery over Wi-Fi instead of mobile roaming. Driving **reach first through Wi-Fi** can reduce emissions significantly.

Likewise, explore focusing your **ad delivery when there is more renewable energy in the grid.** For example, Hearts & Science created their '[Renewables Ad Engine](#)' to optimise CTV campaigns towards times when renewables were highest, reducing emissions overall by 51% without any loss of quality.



CASE STUDY:

**NEXD,
HATCHED
MEDIA &
CONVO MEDIA**
End Food Waste
Australia

ENDING FOOD & EMISSIONS WASTE

This Federal Government-funded campaign tackled two challenges at once: Australia's food waste crisis and the hidden environmental cost of digital advertising.

Ad serving via GPU enabled 72% asset compression, and streaming delivery further reduced data transfer by only loading creative as needed.

Additional reductions in emissions came from lower production time (-40%), compressed file storage, and the GPU's lower power draw – not captured in the headline results of the campaign but still delivering important savings.

Not only did the campaign slash emissions, it also delivered brilliant results helping tackle food waste in Australia. The creative received 52% engagement, 25% unaided recall and 56% behavioural intent.

Results

-89%

Reduction in data transfer required

956kg

CO2e of carbon saved



**THE EQUIVALENT OF
7.7 MILLION MEALS
ARE THROWN
AWAY EVERYDAY**



THE GREAT UNWASTE
TURN FOOD WASTE AROUND

6. PARTNER TO INNOVATE SOLUTIONS



There's only so much you can directly control within media's supply chain. Work with your partners to find innovative solutions and invest in lower-carbon formats.

Building sustainability into your media partnerships also puts pressure on the market to develop and scale solutions, paving the path for future campaigns and the wider industry.

PARTNER TO DRIVE MORE SUSTAINABLE INVESTMENT

Partner with **suppliers investing in sustainable solutions** and infrastructure. This reduces emissions on your plan, whilst encouraging further investment through market dynamics.

Include sustainability **criteria in tenders and contracts**, such as minimum energy standards, renewables commitments and asset reuse and refurbishment.

For example, options exist for lower-carbon OOH production and end-of-life solutions, such as PVC-free static formats, switch-off periods, ultra power saving digital screens, and onsite renewable power. These might not be available in standard packages, so require a true partnership approach.

BE TRANSPARENT ABOUT SUSTAINABILITY'S ROLE

Communicate the role reducing emissions plays in your decision process when **selecting partners and formats**. Build a balanced scorecard to assess each element's contribution towards a lower-carbon but still effective plan.

Share long-term objectives with your key partners and show how any efforts will help progress towards them. Similarly, it's often helpful to understand your partners' sustainability plan and establish mutually-beneficial actions.

Finally, transparency can often **open up opportunities** that you didn't realise existed previously. Remember that sustainability is constantly evolving, and no one team or organization has all the answers!

VALUE SCALABLE, LONG-TERM PROGRESS

Change starts with the first step, and it is wise to test and learn to build confidence in your organization and with your partners.

Once this is established, look to embed new technology, processes and metrics into your operational rhythm.

Let **materiality in both investment and emissions help set your priorities**. Focusing on your most significant markets, channels or partners can help build momentum, and also set expectations for others to follow.

Realise that progress within any given area can be slow, particularly once the 'quick wins' have been adopted. Unlocking further action will require often require **deeper levels of collaboration**.



CASE STUDY:

BENEDICTUS & OOH!MEDIA

Reducing emissions for Australian Ethical

READ MORE ABOUT THIS WORK HERE

COLLABORATION TO SLASH OOH EMISSIONS

Australian Ethical faced a growth paradox: one of their strongest brand awareness drivers was also found to be one of the most carbon-intensive channels. Continuing to scale OOH to grow the brand, meant scaling the very impact the brand exists to reduce.

This called for a partnership approach between Benedictus Media and oOh!Media, to cut emissions across multiple elements without compromising effectiveness. This included:

- Reducing waste through rigorous targeting
- Solar-powered panels wherever possible
- Recyclable skins for all large format classic billboards
- Creative testing and colour optimization for energy consumption

This holistic approach slashed emissions, while the campaign beat performance expectations.

Results

-82%

Reduction in gCO2e per 000 impacts

-13%

Reduction in paid media annual GHG emissions



KEY RESOURCES TO SUPPORT YOUR REDUCTION EFFORTS

The following resources are freely available. They include a mix of Ad Net Zero resources and those from credible third parties, allowing you to explore topics covered in this guide in greater detail.

[GMSF FULL GUIDANCE](#), and [QUICK START GUIDE](#) including all formulae, data guidance for calculating emissions, and supporting resources.

[GLOSSARY](#) of key terms used in measuring and reducing emissions from media, found from P58 onwards of the GMSF

[IAB TECH LAB'S SUSTAINABILITY PLAYBOOK](#), with detailed technical guidance for reducing emissions throughout digital's supply chain.

[AD NET ZERO RESOURCE HUB](#) containing tools and guidance to support all areas of sustainability in advertising, not just media.

Ad Net Zero supporters get access to additional local and global resources. If you are a supporter, contact your sustainability lead to get direct access, or contact general@adnetzero.com.au

CREDITS

Ad Net Zero relies on collective action from supporters, and this guide has been developed by members of the 'Reducing Media Emissions' working group. This includes representatives from Arnott's, Benedictus Media, dentsu Australia, Foxtel Media, JCDcaux, Net Zeto Media, NEXD, OMG, oOh!Media, Publicis Groupe, The Guardian, Val Morgan and WPP Media.

QUESTIONS

Reach out to the Ad Net Zero AU Chapter (general@adnetzero.com.au) with questions, suggestions, and to find out how you can contribute to future working groups.

