



THE MEDIA IMPACT

| George Tzintzis

With every moment of life, we consume energy.

Energy consumption has increased, at a rapid rate since the industrial revolution, along with the increases in productivity it brought. Energy consumption leaves footprints, carbon footprints, and while some pollutants we can see and smell, others are not so easy to recognise.

The shoes on your feet, were produced emitting carbon. The clothes you're wearing, black balloons of carbon. The watch that navigates your day, you guessed it, full of CO₂ residue. Media, across all channels, carry a footprint and we need to measure accurately.

If you consume, you emit. With the majority of us plugged into the land of media, the environmental cost of its production is often missing from the conversation. Whether watching TikTok until 3 am, flicking through catalogues for the latest sales over a coffee, or listening to breakfast radio while merging lanes on the freeway, each and every one of our media behaviours leaves behind a trail of CO₂e.

CO₂e is the scientific code for carbon dioxide equivalent, a term used for describing different greenhouse gases in a common unit to help measure our impact on the environment.¹

From wood pulp, ink, camera operations, data storage - whatever it may be, there are environmental costs that come with producing and enjoying a newspaper or a TV segment. What's most interesting of all, is that not all media is created equal. Knowing how and why is all part of the journey.

Let's take a look at the different types of media we consume and what their emission output looks like.

If the internet were a country, it would rank 5th for the amount of energy it uses, sitting just below Japan.



Watching TV for 63 hours is equivalent to driving 3345.3km. In that very same car, you could drive from Wellington to Auckland five times over.

Social

Some of us make a conscious effort to reduce our carbon footprint. We recycle our plastic bottles, take our reusable bags with us when we go grocery shopping and use public transport whenever we can. However, if you spend all your time on TikTok, the fastest growing social media platform, the carbon footprint of your life might not be what you think it is.

Spending 145 minutes on TikTok every day for a year causes nearly 140kg of CO₂e, which would be comparable to driving a standard car for more than 563.27km.² When you multiply that by millions of TikTok users around the world, the impact becomes clear.

The environmental damage caused by Instagram isn't much better either. Posting a photo emits 0.15g of CO₂e or scrolling on your newsfeed for 1 minute emits 1.5g of CO₂e. It might not seem like much, but the average user spends 28 minutes scrolling daily which amounts to 42g of CO₂e every day,³ which equals 15.33kg of CO₂e yearly for just one social media platform.³ Instagram currently has 1 billion million users every month.

If we multiple that by the five other social media platforms, the average consumers have in their phone, the numbers speak for themselves.

Digital Search

According to Greenpeace, if the internet were a country, it would rank 5th for the amount of energy it uses, sitting just below Japan. In context, it sounds fairly shocking.⁴ Businesses, such as Google, whose core deliverable is directed online, are finding new ways to make it 'cleaner'. According to Google, each internet search had a CO₂e footprint of about 0.2g a decade ago. Today, Google mixes renewable energy and carbon offsetting to reduce the carbon footprint of its operations, while Microsoft, it's competitor, which owns Bing, has promised to become carbon negative by 2030.⁵

According to Google, someone who performs 25 searches a day using their services, watches 60 minutes of YouTube, has a Gmail account and accesses some of its other services, produces approximately less than 8g of CO₂e a day. Which, if we're going down the path we've been going, is only a small trip to your local supermarket and back in a standard car, maybe even less.⁶ That said, this emission only captures the viewing of the media and not the manufacturing footprint of hardware, software or content being viewed. Those figures are excluded from Google's analysis.

Email

An email's carbon emission all depends on the size of the email itself and what's attached to it. A typical year of incoming mail adds up to 135kg of CO₂e, which is the equivalent to driving 321.8km in a standard car.⁷ This is equivalent to driving from Sydney to Newcastle and back (maybe just a little under).

When considering email emissions and size, spam email roughly produces approximately 0.3g CO₂e, whereas a regular email produces 4g CO₂e, and an email with a photo attached produces a staggering 50g CO₂e in comparison.⁸ Again, depending on the size of the email and the size of the image attached to it, these statistics could be higher.

But not just the size of the email, the data for this could change depending on the device you a viewing the email. Your mobile, laptop and desktop all run on different levels of energy, meaning, they produce different levels of carbon emissions. Email content production, hardware and software again are absent from global analysis, which is why we should look for devices.

Devices

Different devices used to view media generate carbon emissions at different rates and are also produced differently. There are so many variables involved it can be hard to track the exact total of carbon emissions used to produce/use these certain devices. However, we've researched the following.

Apple's Environmental Reports suggest that a 24-inch Apple iMac desktop, during its life cycle, will produce 481kg CO₂e. Apple says 45% of that goes to production, 10% to transportation, 44% to the use of the device and <1% to its end-of-life processing. Apple also says that it takes 77kg CO₂e to make an iPhone Xs Max 64GB model and 86kg CO₂e to produce an iPad Air. Another find is that 30kg CO₂e is produced in making an Apple Watch Series 4, and that it also takes 233kg CO₂e to produce a 12-inch MacBook⁹ - this is equivalent to driving 353.1km in a standard car. Multiply that by all devices, all channel outputs and content production footprints ... the tally is rising.

Television

The Television industry has developed impressive carbon calculators that help production teams assess their footprint and curtail unnecessary emissions. The British Broadcasting Corporation (BBC) has also implemented a policy that requires carbon reporting for all of its productions over the next ten years.¹⁰ For television, the data from 159 one-hour scripted dramas showed that the average carbon footprint per episode was 77 metric tonnes of CO₂e. The 1/2 hour scripted single-camera shows had a carbon footprint of 26 metric tonnes, and the 1/2 hour scripted multi-camera averages 18 metric tonnes. While unscripted shows had a carbon footprint of 13 metric tonnes.¹¹

On the consumer side of Television, one hour per day on the 32-inch LCD comes to 35kg CO₂e per year - equivalent to a 53.1km drive in an average petrol-powered car¹². While Broader Video on Demand (BVOD) or streaming is proving to be hugely popular, it's important to remember that Australians spend on average over 55 hours per month watching broadcast TV.¹³ And just across The Tasman Sea, 15.75 hours of TV are watched, on average, every week by New Zealanders,¹⁴ which works out to be approximately 63 hours a month. So, whether free to air, with 15 minutes

average advertisement time per hour, or streaming, with programmatic media, the entire viewing and production footprint is significant.

Now if we do the math, watching TV for 63 hours is also equivalent to driving 3345.3km in a standard car, which approximately works out to be like driving from Wellington to Auckland five times over.

Radio

Since radio's introduction in the 1890s, there have been many improvements to the channel's sustainability practices. However, radio does emit a large amount of carbon when producing a segment and whilst listening. A conventional 20W radio turned on for two hours a week by one person will produce approximately 18,000 tonnes of CO₂e a year.¹⁵



The myth here is that paper is energy intensive and has a high-carbon footprint. The fact is paper has one of the lowest carbon footprints across all media.



Catalogues

While you may think flicking through Aldi’s specials in their catalogue could cost you on your sustainability street credibility, the claim that going digital is more sustainable isn’t always the case. Staying in supermarkets, every Coles customer who spends 60 seconds browsing a digital catalogue will emit 12g of CO₂e. This is high in comparison to viewing a printed catalogue for a day and only emitting 0.5g of CO₂e,¹⁶ which is equivalent to turning your average standard car on and off again. Not to mention all catalogues are made from a renewable resource using biodiverse and planted forestry principles, and the paper making process is powered by hydroelectricity from Tasmania. The printing process does emit and producing a catalogue using fossil fuels can emit an average of 0.12kg per page, but this reduces if a printer is using renewable energy sources.

Magazines

One of the most respected magazines in the world, *National Geographic*, took up the question of how much carbon it emits producing the magazine itself. They financed a study completed by the ‘International Journal of Life Cycle Assessment’ which showed that the average life cycle of a *National Geographic* magazine produces only about 0.82kg of CO₂e.¹⁷ The quantity of greenhouse gas emissions per life cycle of each National Geographic magazine produces about the same quantity of greenhouse gases as driving a standard car over a 3km distance.



Newspapers

The myth here is that paper is energy intensive and has a high-carbon footprint. The fact is paper has one of the lowest carbon footprints across all media. Mike Berners-Lee used his kitchen scales to work out what the approximate carbon footprint of various newspapers would be if they all used averagely carbon-efficient paper stock and printers.

The results were as follows:

- 0.3 kg CO₂e the Guardian Weekly, recycled
- 0.4 kg CO₂e the Sun, recycled
- 0.5 kg CO₂e the Daily Mail, recycled
- 0.8 kg CO₂e the Guardian, recycled
- 1.8 kg CO₂e a ‘quality’ weekend paper, recycled
- 4.1 kg CO₂e a ‘quality’ weekend paper, sent to landfill¹⁸

The Tasmanian paper mill, Norske Skog, is in fact carbon positive due to its hydroelectric energy supply and reforestation schemes. Many papermills use the waste bark and lignin from the trees as the energy source, often producing more energy than it requires to make the pulp and paper itself. In Japan, energy conversion programs see the excess energy being sold back to the Japanese energy grid, something the Australian industry is reviewing in Victoria and hopes to be implemented in the near future.

Conclusion...

Additionally, the Australia and New Zealand print industry can stand tall in its environmental credentials. It has reduced its carbon footprint by more than 90% since 1990, while printing machines have also reduced energy use by around 40% every ten years. Even more so, since the early 90s the entire industry has reduced chemical use by a staggering 98%.¹⁹

To conclude, ‘carbon foot-printing’ and an ‘apples with apples’ comparison is complex. Some channels record CO₂ on viewing, while others across the true cradle-to-grave model record production-to-output. A processed-based life-cycle analysis is the most common approach to carbon foot-printing and is often referred to as the ‘bottom-up’ method. This is because of the need to identify one by one all the processes that have had to happen in order for a product to be created. Eventually, you add up the emissions from each process and that’s the footprint of the product.

So, while some channels miss a few steps, some overstep. The key finding here is that if we are to finitely measure carbon emissions, we must remain vigilant. Research and analysis show that the argument of whether new media has a lower footprint than established media is debunked. It can cost more in CO₂e to keep things running, rather than producing a single once-off product.

In the words of Dr Phillip Lawrence, senior lecturer and pulp and paper industry expert, “It is fundamentally wrong for any business to make environmental claims that cannot be justified by detailed analysis. If brands did rely on peer-reviewed, fact-based researched on the environmental decisions they made, it is more likely they would not be advertising online or on television screen.”²⁰



Sources:

- ¹ Ecometrica, 2012
- ² Global Citizen, 2022
- ³ Eath.Org, 2021
- ⁴ Target Internet, 2022
- ⁵ British Broadcasting Corporation (BBC), 2020
- ⁶ Google, 2022
- ⁷ How Bad Are Bananas? The Carbon Footprint of Everything, 2010
- ⁸ How Bad Are Bananas? The Carbon Footprint of Everything, 2010
- ⁹ Apple, 2021
- ¹⁰ British Broadcasting Corporation (BBC), 2022
- ¹¹ Sustainable Production Alliance, 2021
- ¹² How Bad Are Bananas? The Carbon Footprint of Everything, 2010
- ¹³ Think TV AUS, 2022
- ¹⁴ Think TV NZ, 2022
- ¹⁵ The Guardian, 2006
- ¹⁶ The Real Media Collective, 2020
- ¹⁷ Tremblant Express, 2019
- ¹⁸ How Bad Are Bananas? The Carbon Footprint of Everything, 2010
- ¹⁹ B&T Magazine, 2020
- ²⁰ B&T Magazine, 2020

