Each internet search, a song played, video streamed, message sent, route planned via GPS, cashless payment, and social media scroll contributes to growing energy consumption, global demand for electricity, and rising CO2 emissions. The world's digital carbon footprint is becoming increasingly difficult to ignore.

Do emails leave a carbon footprint?

We hate to be the ones to break it to you, but pretty much anything we do has an effect on the environment — emails are no different. Most emails, including spam ones, unread ones, and those you simply forgot you never deleted are generally stored on the cloud. Cloud storage requires quite a lot of electricity, which in most parts of the world is still generated by fossil fuels. This means that while emails no longer contribute to paper pollution, they still contribute to carbon emissions. According to The Good Planet, the average American has around 500 unread, most likely junk, emails. If we assume that each email contributes 0.3 grams of CO2 based on carbon emissions, then we are dealing with 150 grams of extra carbon dioxide per U.S. citizen.

How do we minimize our carbon footprint in terms of email?

No one is going to stop Google from creating more data but we as individuals can lower our own environmental impact by taking charge of our own junk... well, junk mail, anyway. Deleting emails is the easiest way to reduce your carbon footprint on the computer, but that's not all you can do. You could also unsubscribe from emails or newsletters you don't actually intend to read, or delete those emails once you've read them.

According to The Good Planet, nearly 107 billion spam emails were sent and received a day in 2019. If every person only deleted 10 of those emails, they could save 1,725,00 gigabytes of storage space and around 55.2 million kilowatts of power.

Every time we use the internet or social media, a small amount of carbon is being emitted. While one single person's usage only generates a small amount of carbon dioxide, the collective amount of carbon emissions of the world's digital usage is worrying.

Facts Check

How much energy is required for...

...an email?

A one-megabyte email (= 1 MB) during its total life cycle emits 20 g of CO_2 , i.e. the equivalent of an old 60 W lamp lit for 25 min. Twenty emails a day per user over one year, create the same CO_2 emissions as a car travelling 1000 km.

...a data centre?

A single router consumes 10,000 watts (10 kW). A very large data centre comes close to 100 million watts (100 MW), or one-tenth of the output of a thermal power station. In fact, on top of the consumption required to run the servers, the electronic circuits must be cooled using air conditioning.

... a web search?

The search for a web address represents 3.4 Wh (0.8 g CO_2 equivalent). But the total rises to 10 g after an internet search producing five results. If a web user makes an average of 2.6 web searches per day, this user can be extrapolated to be emitting 9.9 kg of CO_2 equivalent per year.

... a year browsing the web?

When browsing the web, an average internet user yearly needs about 365 kWh electricity and 2,900 litres of water, which corresponds to the CO_2 that is emitted when you travel a good 1,400 km by car.

Let's try to understand the effects using values:

Let's assume we get nearly 10 emails per day, that would be 1,400 emails a year which emits around 7 kg of CO_2 which is a huge amount. You will process around 1,400 emails this year which in turn will create around 7kg of CO_2. The impact of your annual email load on the planet is about the same as if:

1. YOU HAD USED 680 PLASTIC BAG CARRIERS
2. THREW 84 DISPOSABLE CUPS OF TEA OR COFFEE

How can we reduce our digital carbon footprint?

1. Adjust power settings

Set your computer to go into sleep or hibernate to conserve energy when you're taking a break. Shutting down your computer and turning off your monitor and printer altogether when they're not in use will save even more.

2. Green Website Hosting

Once you've got your email and phone sorted, what about your website? It's been suggested that today, based on the energy consumption of the average data centre, a website with 10,000 page views a month could emit up to as much CO2 [as driving a car over 5000 miles](#). Switching to a green web hosting provider, one that uses renewable energy and focuses on improving and optimising energy efficiency, could make a huge difference.
We also use a green service provider to host RESET.org. [Hetzner Online](#) uses electricity from renewable sources to power the servers in their own data centre parks.

3. Turn on strict tracking protection

Data tracking services gobble up mountains of information. On nearly every single website you visit, data about you was transmitted to dozens or even hundreds of companies. Firefox now comes with [Enhanced Tracking Protection](#), which protects you from the pervasive tracking and collection of personal data by ad networks and third-party trackers. Setting your preferences to the Strict setting will block most data transfers and processing. That also equates to less energy being used, though some sites may break.

4. Download instead of stream

Streaming music and videos adds to your digital carbon footprint, according to at least one researcher. Opting to download rather than stream means you'll pull the data from the server only once. Some streaming services do a better job of mitigating their impact than others, according to the Click Clean Report from Greenpeace.

5. Reuse your searches

It turns out that a good deal of search queries — the things you type into a search engine — are navigational, meaning you're not necessarily looking to *find* something so much as you are looking to *go somewhere* that you've already been. An example would be that you search for twitter.com to go to your Twitter feed. Using search rather than simply going to the site sends the information from your browser to the search engine servers for data processing before returning a list of search results to your browser.

That processing contributes to your digital carbon footprint, but there is another way: the Firefox Address Bar, AKA the "Awesome bar". Just start typing in the address bar and the autocomplete drop-down will show matching web pages from your browsing history, open tabs, sync'ed web pages, as well as pages you've bookmarked or tagged. Instead of processing a search, you can hop directly to your destination, and that will bring your search carbon footprint to nil.

6. Block video autoplay

Playing videos use more energy, so why not nip it in the bud by stopping videos you don't necessarily even want to watch from playing in the first place. The latest Firefox [blocks videos with sound from autoplaying](#) by default.

7. Offset your digital carbon footprint

[Ecosia](#) is a search engine that funds tree planting from the profit it makes through online searches. In fact, Ecosia estimates that Firefox users have planted 20,000 trees, offsetting up to 960,000 pounds of carbon emissions per year. Way to go, Firefox fans! Learn more about how to calculate and offset your carbon footprint at [Carbonfund.org](#).

8. Use Alternative Email Providers

Every mail that you send, receive or save contains not only text and images, but also bits and bytes. Most established providers use the electricity mix of whatever country they are based in - usually including energy from coal-burning power stations. It's better for the planet for you to send all of your emails using 100% renewable energy, and these days there are more than enough providers offering exactly that. And there's an extra bonus too: alternative providers generally protect your data and your privacy better than the industry's big-hitters. All of these providers are completely ad-free, meaning you have to pay a small fee to use them. But that also means you also never have to see annoying product personalization ads ever again, hooray!

- The [email provider Posteo](#) gets its electricity from Greenpeace Energy, banking transactions are handled by green German banks such as GLS Bank and Umweltbank. A mail address at Posteo costs one euro per

month. In return, you get 2GB of ad-free mail storage and extras like a calendar and address book. Data can be secured by two-factor authentication or the entire mailbox can be encrypted.

- With Mailbox.org, for one euro per month, you will also get an ad-free email box with a size of 2 GB. Besides mailbox, address book and calendar, Mailbox offers a text and spreadsheet programme. Two-way authentication and one-time passwords are supported. They get their electricity from the green electricity provider Lichtblick and their account is held at the ethically-minded Social Bank.
- Tutanota is another provider based in Germany, offering a free and open-source end-to-end encrypted email service, driven 100% by free energy. For 12 euro a year you get 1GB of space and a free calendar has thrown in too, or you can upgrade and pay more for more storage and services.
- Norwegian-based Runbox prides itself on being the world's leading "hydropower email service" - thanks to the country's natural water sources, the email servers are run on 100% renewable energy. Your emails are encrypted and protected by Norway's strict privacy legislation. Their basic account costs 15 euro a year and gives you 1GB of email storage and 100MB of file storage too.

9. Install an ad-blocker

Advertising on the internet is usually technically pretty complex (flash animations, pop-ups, videos...), making them very data-hungry too. Ad-blockers stop adverts from appearing while you're on the internet, which makes the pages load faster and uses fewer resources too. And yet another advantage: ad-blockers help improve data security too, by stopping advertising companies and other third parties from automatically collecting information about you. There are lots of free ad-blockers available to download online and some web browsers even have them pre-installed.

Sources and References to learn more:

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