Can sending fewer emails or emptying your inbox really help fight climate change?

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The massive carbon footprint left behind by emails has been widely discussed by the media, but most of the time these discussions are

exaggerated.

According to Agnès Pannier-Runacher, the French minister of energy transition, reducing the number of emails that are sent and deleting them would reduce the individual carbon footprint. News stories have voiced these ideas as well.

In a recently published paper, we found that some iconic digital activities, such as sending email, contribute marginally to the annual carbon footprint of information and communication technology users.

As researchers working on the environmental impacts of our actions, we believe it is important to dispel this myth, which has persisted for several years, so that we can focus on curbing the bigger sources of carbon footprints.

The carbon impact of emails

The idea that sending less email would reduce a significant amount of greenhouse gases (GHG) was popularized by Mike Berners-Lee's book *How Bad Are Bananas? The Carbon Footprint of Everything*.

The book mentions that a person's average annual email usage produces between three to 40 kilograms of carbon dioxide and other greenhouse gases or Carbon Dioxide Equivalent (CO_2e), which is the equivalent of driving between 16 to 206 kilometres in a small petrol car. These figures were picked up by several media outlets around the world, which helped to reinforce this idea.

Carbon values, as seen in Berners-Lee's book, have varied from 0.3 to 50 grams of CO_2e per email. But these numbers are constantly changing and seem minute when compared to the carbon footprints of the so-called solutions.

Quantifying the carbon footprint of sending emails, or any other digital service, is not an easy task. The results depend heavily on the assumptions made and the data used. And the energy efficiency of data transmission and storage is constantly improving.

Can sending fewer emails or deleting them really help?

So, what would happen if we decided to send drastically fewer emails or delete emails that are no longer useful? Apart from freeing up some space in the servers that host them, there is no evidence that we could substantially reduce the energy consumption of digital infrastructure. Here is why:

1. Digital data storage and transmission systems operate 24/7, with a more or less constant base load of energy, even when not in use. Regardless of whether the email is sent or not, networks would use about the same amount of energy.

2. An incredible number of spam emails (122 billion in 2022) and genuine emails (22 billion) are sent every day. While these numbers seem alarming, email exchanges represent only one percent of Internet traffic. In comparison, video streaming services account for about 82 percent of internet traffic and could increase further in the coming years.

3. Knowing that 85 percent of email traffic is actually spam, sending fewer emails at the individual level would have a limited influence on decreasing the amount of email traffic on the web.

4. Regardless of whether an email is sent or not, our computers and routers are always on. Electricity consumption associated with

electronic devices, therefore, would remain more or less always the same. Very rarely do we turn on a computer just to send an email.

5. Impacts that are associated with the use of data centres and transmission networks are extremely low. To give you an idea, driving a kilometre in a compact car emits as much CO2e as the electricity that is used to transmit and store 3,500 emails of five MB. The electricity needed to heat a cup of tea in a kettle consumes as much electricity as transferring and storing about 1,500 emails of one MB.

6. Deleting 1,000 emails would have a carbon benefit of about five grams CO2e. However, the impact of using a laptop for 30 minutes (to delete these emails) emits 28 grams of CO2e in provinces like Alberta that use high-carbon electricity. In Québec, where the electricity production sector has one of the lowest carbon footprints, this figure amounts to about five grams of CO2e. So, manually deleting emails can actually have a greater carbon impact than simply storing them, since you spend more time using the computer.

Reducing the carbon impact of our email use?

In order to quantify the carbon footprint of an email, it is necessary to take into account all of the steps that are involved in its life cycle, ranging from writing to receiving and reading emails, to saving or archiving them.

Overall, the carbon footprint of emails is mainly associated with the manufacturing of electronic devices that are used to write and read them.

The actual use of the devices becomes more important, and may even be more important than manufacturing, because the electricity that is used to power these devices is produced mainly from fossil fuels.

The best way to reduce the carbon footprint of email is to buy fewer electronic products, retain these devices for as long as possible and use ones that consume less electricity.

Send emails when you need to or when you think the recipients will appreciate your message, even if it consists of just a simple thank you. Delete your emails if you want to save storage space, find what you are looking for more rapidly, or many other good reasons besides saving the planet.

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