



# The Carbon Footprint of the Internet and Green Computing

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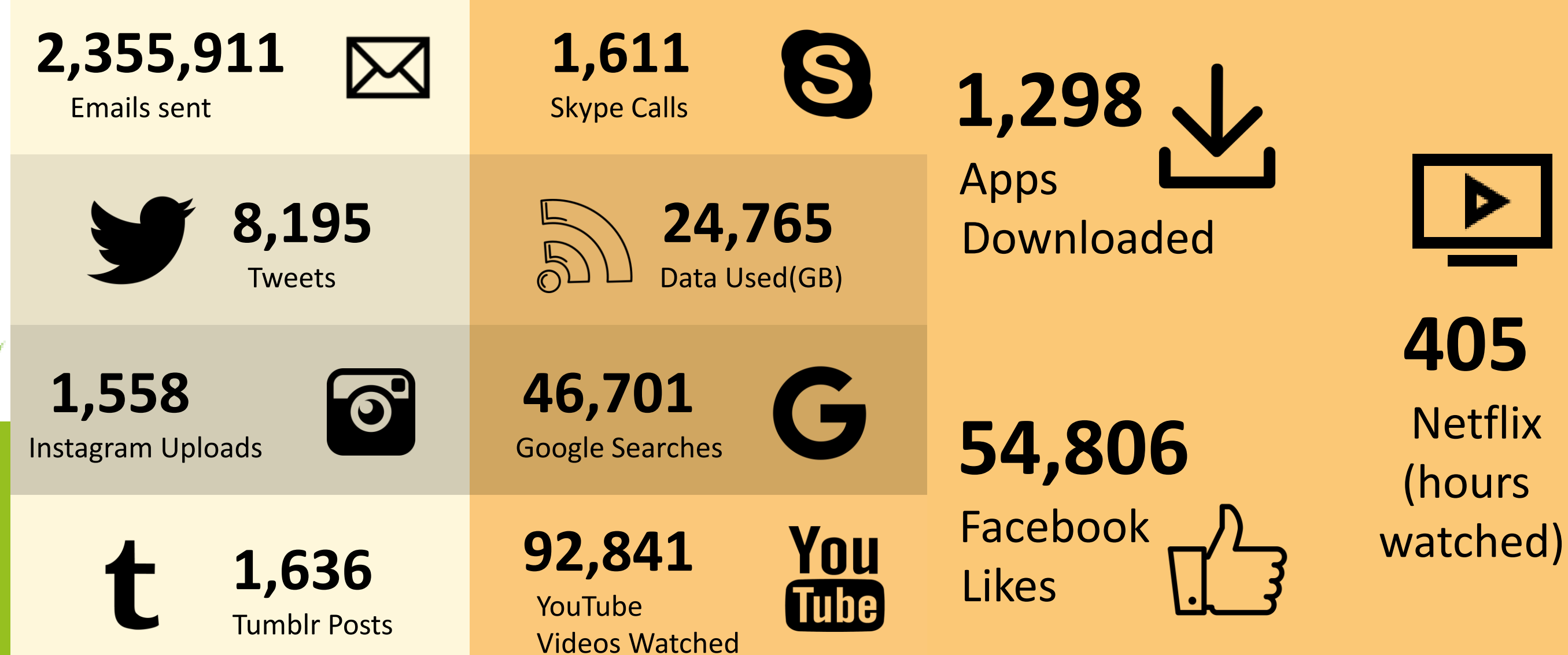
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It's not just fossil fuels, deforestation, and car fumes that are polluting our planet. Emails, Likes, Tweets and Google searches are also adding problem to our planet.

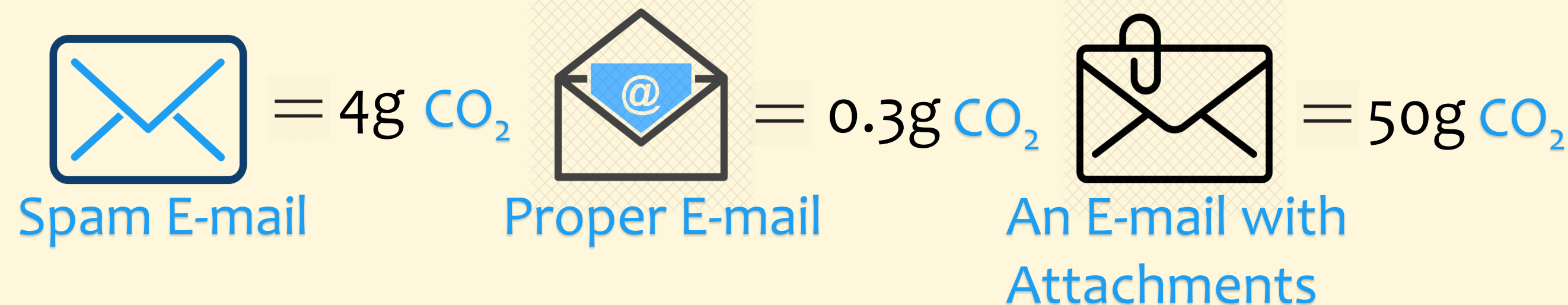
Internet consumes 868 billion kWh per year = 5.3% of global electricity consumption.

Internet usage per second from such activities results in 20mg of Carbon Dioxide (CO<sub>2</sub>) emission

## Every second on the Internet there are <sup>[3]</sup>



## Daily activities



Watching **YouTube** for 10 minutes = 1g CO<sub>2</sub>

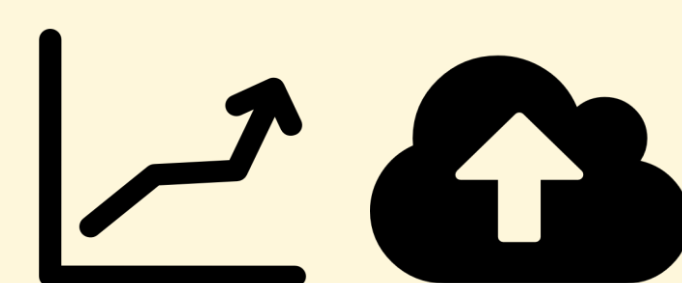
Watching "Final Destination(All Series)" = 50g CO<sub>2</sub>

**Google**  
estimated to own **1 Million** servers, more than 2% of all the world's servers.  
A single search produces 0.2g of CO<sub>2</sub>.  
The 3,100,000 searches emit 620g of CO<sub>2</sub>

= 0.5g of Coal

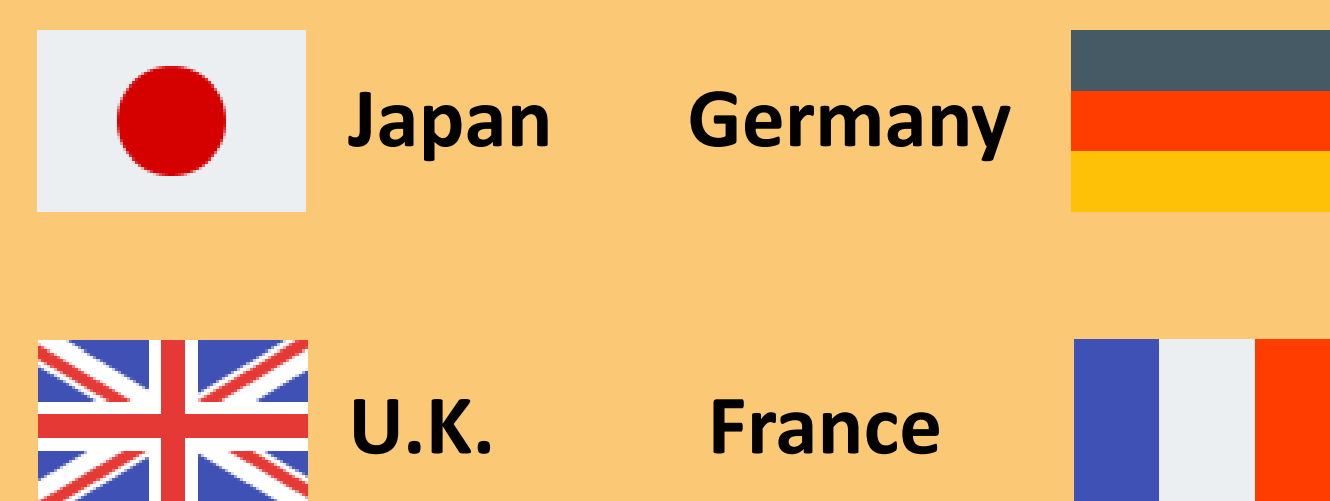
## The amount of data we use is set to increase

Analysts project that data use will triple between **2017** and **2020** to **121 exabytes (121 billion Gb)**



Followed by:

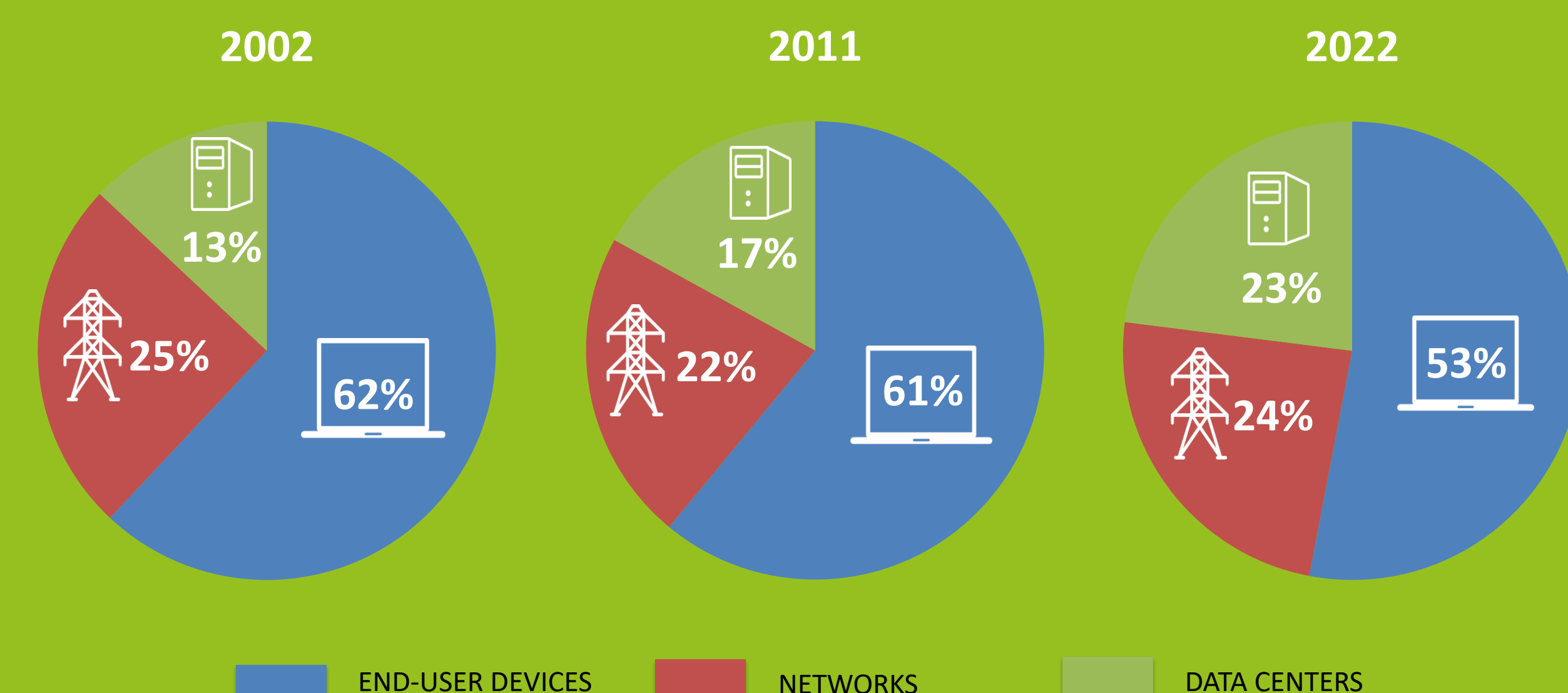
The **U.S.** remains the largest global consumer of data center power.



## Facts

- Average website releases 4,700 lbs. of CO<sub>2</sub> for every 10,000 page views, which is equivalent to driving a car for 5,109 miles according to the United States Environmental Protection Agency's Green House Gas Emissions.
- Data center electricity consumption is projected to increase to roughly 140 billion kilowatt-hours annually by 2020, the equivalent annual output of 50 power plants, costing American businesses \$13 billion annually in electricity bills and emitting nearly 100 million metric tons of carbon pollution per year.
- The internet releases around 300 million tons of CO<sub>2</sub> – as much as all the coal, oil and gas burned in Turkey or Poland in one year, or more than half of those burned in the UK.
- 343.5 million tons of CO<sub>2</sub> was down to consumer and commercial ICT in 2005 – equivalent to around 1.2% of current fossil-fuel CO<sub>2</sub> emissions. ICT's footprint is due to climb by 60% by 2030.

## Carbon emissions and the cloud



## An efficient infrastructure can result in:

If all data centers operated about 50% more efficiently, the U.S alone would save enough electricity to power every household within the city limits of Atlanta, Los Angeles, Chicago, and Washington, D.C.



➤ The shift to cloud based operations could mean: A **38% reduction** in energy usage.

➤ **\$30** savings annually on each efficient server (**\$30 x 1million servers = \$30 million savings**) can save.

Electricity: **500kWh** saved.

Water: **1000gal** saved.

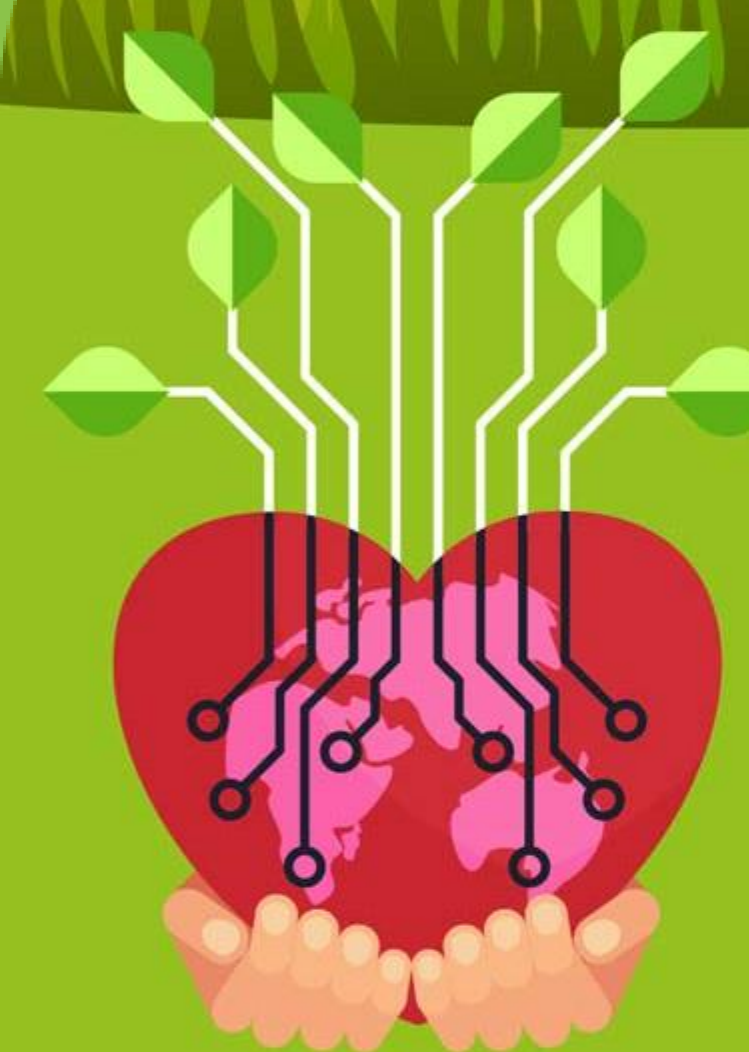
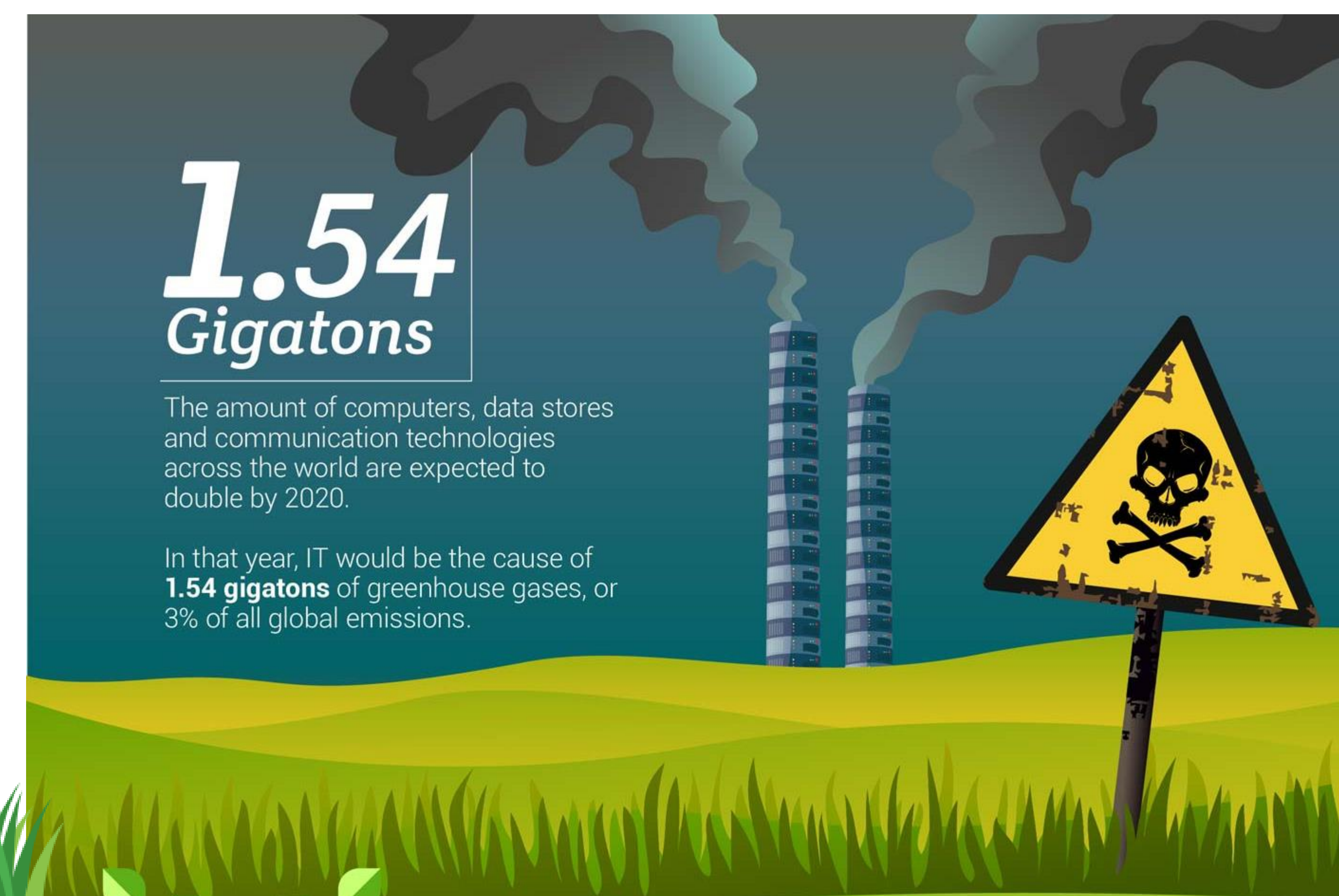
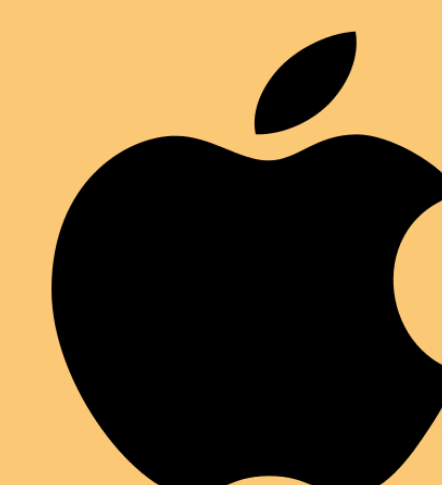
## Internet Companies like APPLE have taken Big steps to Go GREEN

Purchased **Wind Energy** for its Oregon and California data centers.



Powers its North Carolina and Nevada data centers with **Solar Energy.**

Powers its Nevada data centers with **Geo thermal Energy**



## HOW CAN YOU cut your energy costs and reduce your internet carbon footprint?

**1**

**Turn off your** computer if you know you will be away from it for more than two hours.



**2**

**Unplug your laptop** from its power supply when the computer is not in use. Leaving it plugged in will still consume energy, which is known as Vampire power.



**3**

When shutting down your computer isn't an option, **set it to snooze** after a certain number of inactive minutes. In **sleep mode**, your laptop only consumes 2-5 watts of energy compared to 15-60 watts while in use.



**4**

For quick searches **use a smartphone or tablet** instead as they use far less energy than larger devices.



**5**

Change your email habits by **limiting "reply all"** messages and **unsubscribing** from newsletters you don't need.



**6**

If you run a web site or business with in-house servers, **choose a hosting service that is conscious about its impact on the environment.** Migrating your operations to a green cloud-based hosting solution will contribute to a possible **38% decrease** in the world's data centre energy usage by 2020.



## References:

- [1.https://www.huffingtonpost.com/entry/carbon-footprinting-the-web\\_us\\_5a00a312e4b076eaae271ca](https://www.huffingtonpost.com/entry/carbon-footprinting-the-web_us_5a00a312e4b076eaae271ca)
- [2.https://www.carbontrust.com/news/2015/12/infographic-how-mobile-communications-technology-is-enabling-carbon-emissions-reduction/](https://www.carbontrust.com/news/2015/12/infographic-how-mobile-communications-technology-is-enabling-carbon-emissions-reduction/)
- [3.https://inhabitat.com/why-sending-an-email-can-increase-your-carbon-footprint/](https://inhabitat.com/why-sending-an-email-can-increase-your-carbon-footprint/)