



Cabinet Office

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How much
CO2 is produced
by our digital
services at GDS?

Welcome to GOV.UK

The best place to find government services and information
Simpler, clearer, faster

- Popular on GOV.UK
- [Universal Jobmatch job search](#)
 - [Renew vehicle tax](#)
 - [Log in to student finance](#)
 - [Book your theory test](#)
 - [Personal tax account](#)

Benefits

Includes tax credits, eligibility and appeals

Births, deaths, marriages and care

Parenting, civil partnerships, divorce and Lasting Power of Attorney

Business and self-employed

Tools and guidance for businesses

Childcare and parenting

Includes giving birth, fostering, adopting, benefits for children, childcare and schools

Citizenship and living in the UK

Voting, community participation, life in the UK, international projects

Crime, justice and the law

Legal processes, courts and the police

Disabled people

Includes carers, your rights, benefits and the Equality Act

Driving and transport

Includes vehicle tax, MOT and driving licences

Education, training and skills

Early years learning, schools and academies, further and higher education, skills and vocational training, student funding

Employing people

Includes pay, contracts and hiring

Environment and countryside

Includes flooding, recycling and wildlife

Housing and local services

Owning or renting and council services

Money and tax

Includes debt and Self Assessment

Passports, travel and living abroad

Includes renewing passports and travel advice by country

Visas and immigration

Visas, asylum and sponsorship

Working, jobs and pensions

Includes holidays and finding a job

How much CO₂ do we produce keeping sites like GOV.UK up and running?

Why did we do
this?

Government has committed to reduce emissions to zero by 2050

NEWS

Home | UK | World | Business | Politics | Tech | Science | Health | Family & Education

Science & Environment

Climate change: UK government to commit to 2050 target

By Roger Harrabin
BBC environment analyst

12 June 2019

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“We will need to be sure that we are using
**clean and green digital and technology
services and practices”**

The Greening Government Sustainable
Technology Strategy 2016-2020

Teams in government don't have guidance on sustainable hosting

Search



BETA

Complete our quick 5-question survey to [help us improve our content](#).

[Service manual](#) > [Technology](#) > Deciding how to host your service

Technology

Deciding how to host your service

[Give feedback about this page](#)

Published by: [Technology community \(web operations\)](#)
Last updated: 4 months ago

Page contents:

- [Consider public cloud hosting first](#)
- [Planning your hosting strategy](#)
- [Choosing a hosting option](#)
- [Crown hosting](#)
- [Choosing a supplier](#)
- [Moving to a new supplier](#)

Why do digital
services produce
CO₂?

Websites like
GOV.UK run
on computers
in data centres



These computers
are powered by
electricity



“ICT currently accounts for around 3.6% of global electricity use and 1.4% of greenhouse gas emissions”

The Energy and Carbon Footprint of the Global ICT and E&M Sectors 2010–2015, Malmodin and Lunden

How did we
measure it?

We estimated overall CO₂ based on:

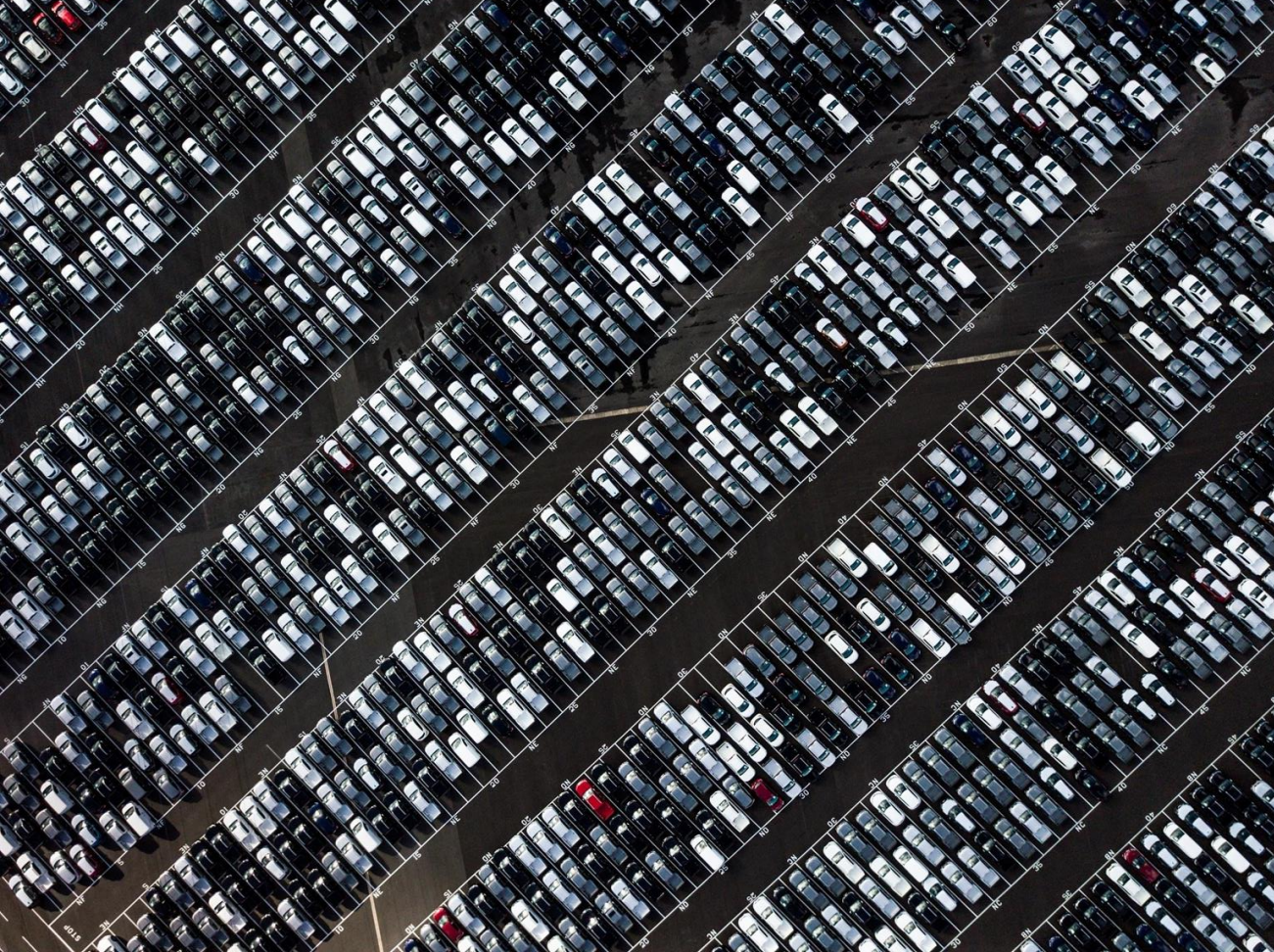
1. Hosting costs per year (£)
2. Minus profit (-30%)
3. Minus costs that aren't energy (-40%)
4. Converting that cost to electricity
(assuming 12p per kWh/month)
5. Converting electricity to CO₂ (assuming
the average UK grid, or 0.352g CO₂/kwh)

What did we learn?



GDS services
produce up to
4,000 tonnes
of CO₂ a year

As much as a
village of 470
homes



Or 700 cars

(photo by Ryan Searle
on Unsplash)

How do we reduce
these emissions?

Zero carbon is possible!


← → ↻ <https://solar.lowtechmagazine.com/about.html> ☆ 📄 🌐

LOW←TECH MAGAZINE

This is a solar-powered website, which means it sometimes goes offline *
MENU ○

About this website

This website is a solar-powered, self-hosted version of Low-tech Magazine. It has been designed to radically reduce the energy use associated with accessing our content.



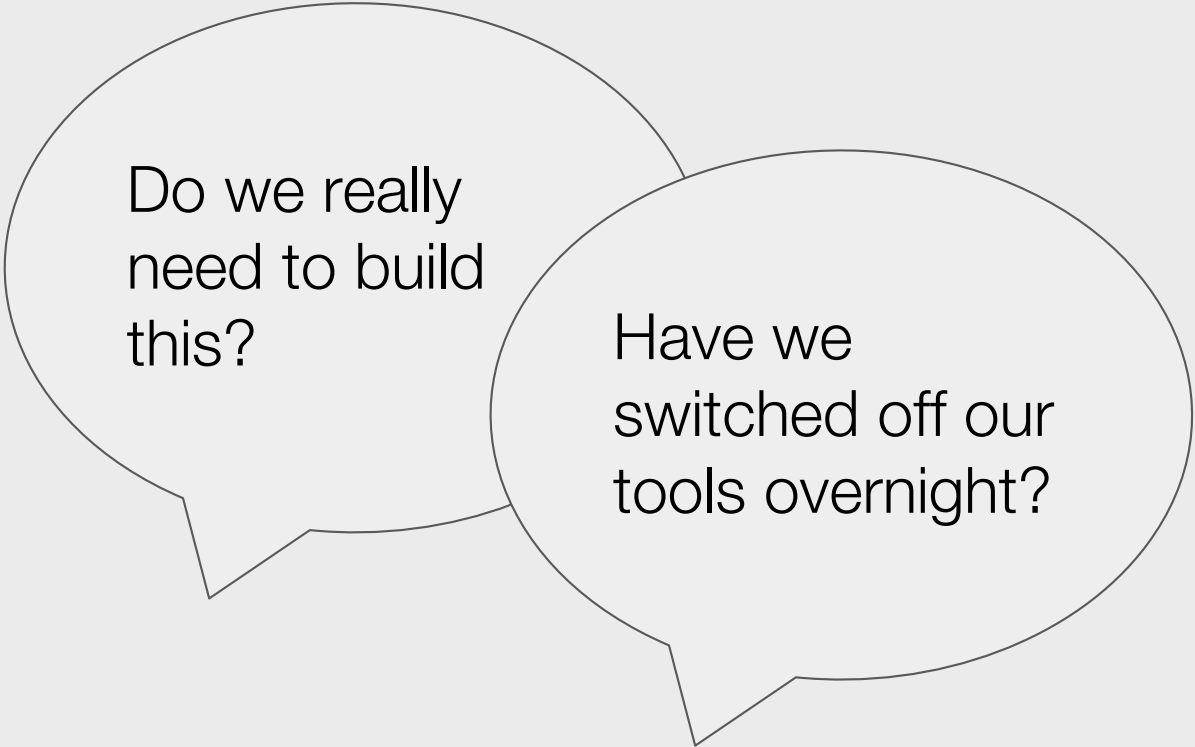
Second prototype of the solar powered server that runs this website.

Last update: January 28, 2020

“The size of the average web page increased at least threefold from 2010 to 2018.”

www.httparchive.org

Use less
Waste less



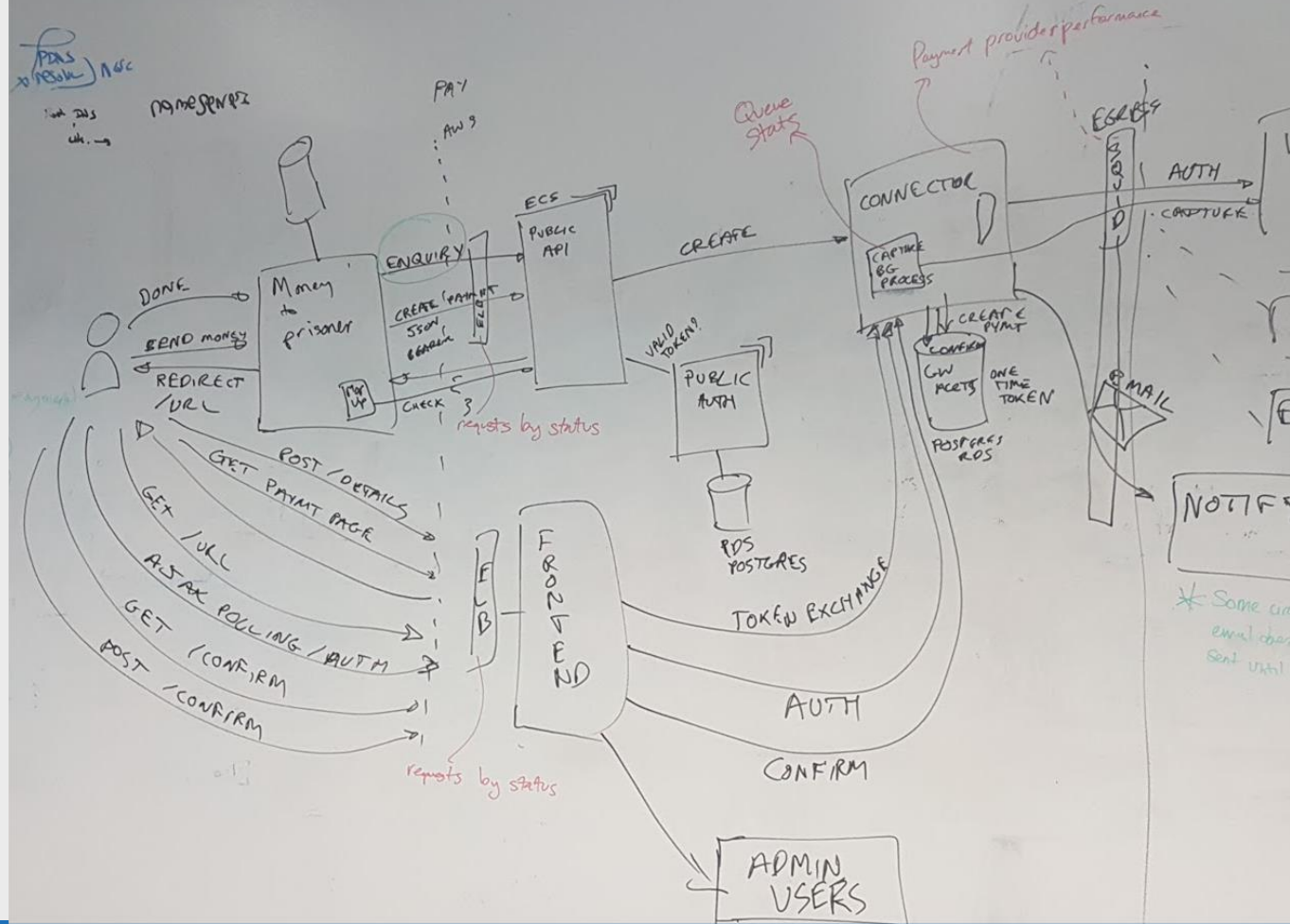
Do we really
need to build
this?

Have we
switched off our
tools overnight?

“I reduced global emissions by an estimated 59 tonnes CO₂ per month by removing a 20KB JavaScript dependency”

<https://dannyvankooten.com/website-carbon-emissions/>

Simplify



Learn to drive a car: step by step

Check what you need to do to learn to drive.

[Show all](#)

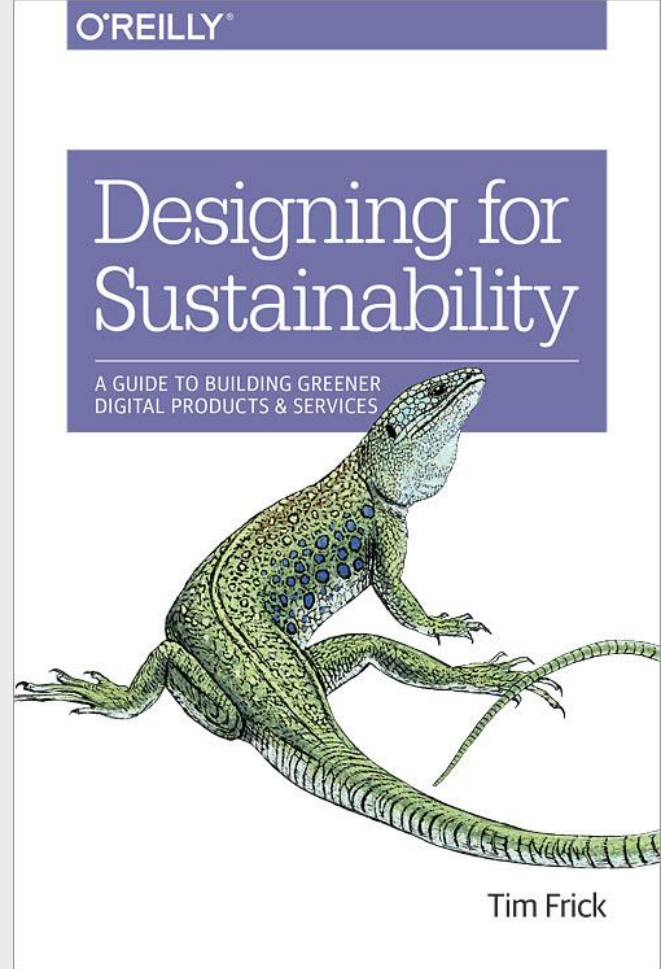
- 1 Check you're allowed to drive**
[Show](#)
- 2 Get a provisional licence**
[Show](#)
- 3 Driving lessons and practice**
[Show](#)
- and Prepare for your theory test**
[Show](#)
- 4 Book and manage your theory test**
[Show](#)
- 5 Book and manage your driving test**
[Show](#)
- 6 When you pass**
[Show](#)

Simpler is
better for
everyone

Show our Cloud
Providers that we value
sustainability



Read more about Designing for Sustainability



Join the ClimateAction.Tech community

The screenshot shows a Slack interface for the #greener-infra channel. On the left is a dark purple sidebar with a channel list including #greener-infra, #introductions, #local-london, #proj-aws, and others. The main area shows a post from Paul Johnston on Wednesday, January 8th, featuring a 'Screaming Cloud' meme and a link to a podcast. A reply from mrchrisadams on Friday, January 10th discusses a serverless framework on GitHub. The bottom of the screen shows a message input field for the channel.

Channel: #greener-infra
Members: 54 | CAT-editable summary post for #greener-infra. Add links and notes you don't want to lose here: [View](#) | [Add](#) | [Remove](#) | [Share](#) | [Search](#)

Post 1: **Paul Johnston** 10:39 AM
Oooh.
The episode @Paul Johnston did with Corey also gets mentioned.
<https://www.lastweekinaws.com/podcast/screaming-in-the-cloud/the-cloud-climate-change-with-paul-johnston/>
Last Week in AWS
The Cloud & Climate Change with Paul Johnston - Last Week in AWS (170 kB)

Post 2: **mrchrisadams** 2:38 PM
so, this is interesting. Serverless (as in with, an event bus, and all the rest, not just FaaS etc.), designed to be portable across vendors:
<https://github.com/GoogleCloudPlatform/functions-framework-python>
Knative is the underlying stuff that google cloud run uses, and i believe it powers this too.
I think this means that anything that can run this would be able to run this without being totally tied to Google's stack in future.
GitHub
[GoogleCloudPlatform/functions-framework-python](https://github.com/GoogleCloudPlatform/functions-framework-python)
FaaS (Function as a service) framework for writing portable Python functions - GoogleCloudPlatform/functions-framework-python

Message Input: Message #greener-infra



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Thanks!

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