SUPPLY CHAIN SUSTAINABILITY SCHOOL

SSEN Climate Academy #1 An Overview of Climate Change & Carbon

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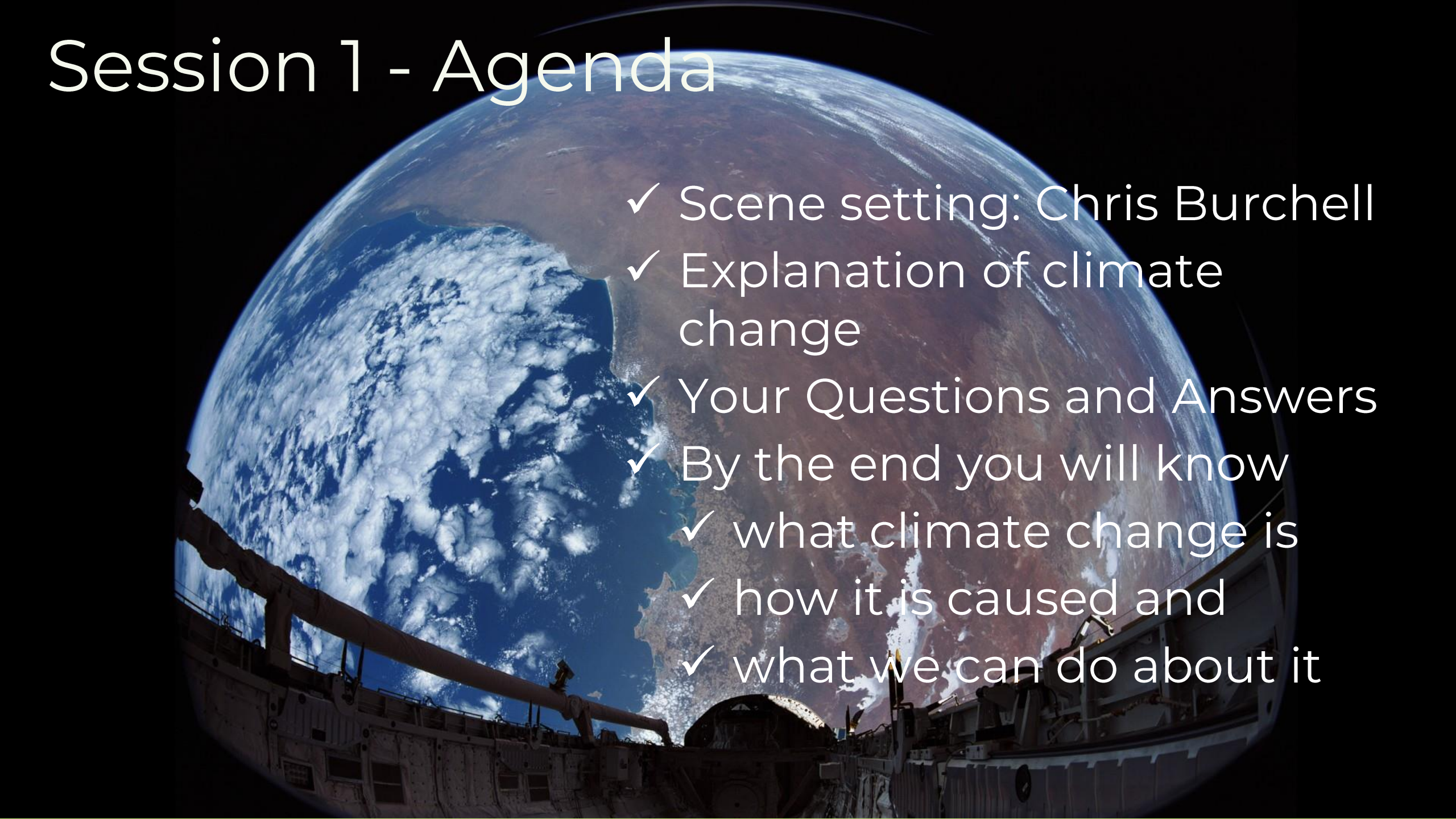
Action Sustainability

SSEN Climate Academy

- This is the first of six sessions in the SSEN Climate Academy:
  - *An Overview of Climate Change & Carbon*

  There are five more *Climate Change* sessions:
  - *Net Zero – 2nd February*
  - *Climate Adaptation – 9th February*
  - *Climate and Nature – 16th February*
  - *Climate and People – 23rd February*
  - *Climate and Resource Efficiency – 2nd March*

Session 1 - Agenda



- ✓ Scene setting: Chris Burchell
- ✓ Explanation of climate change
- ✓ Your Questions and Answers
- ✓ By the end you will know
  - ✓ what climate change is
  - ✓ how it is caused and
  - ✓ what we can do about it

House Rules

- Use the chatbox for questions
- Share your feedback
- Slides will be shared

CHRIS BURCHELL, MANAGING DIRECTOR
SSEN DISTRIBUTION

Scottish & Southern Electricity Networks

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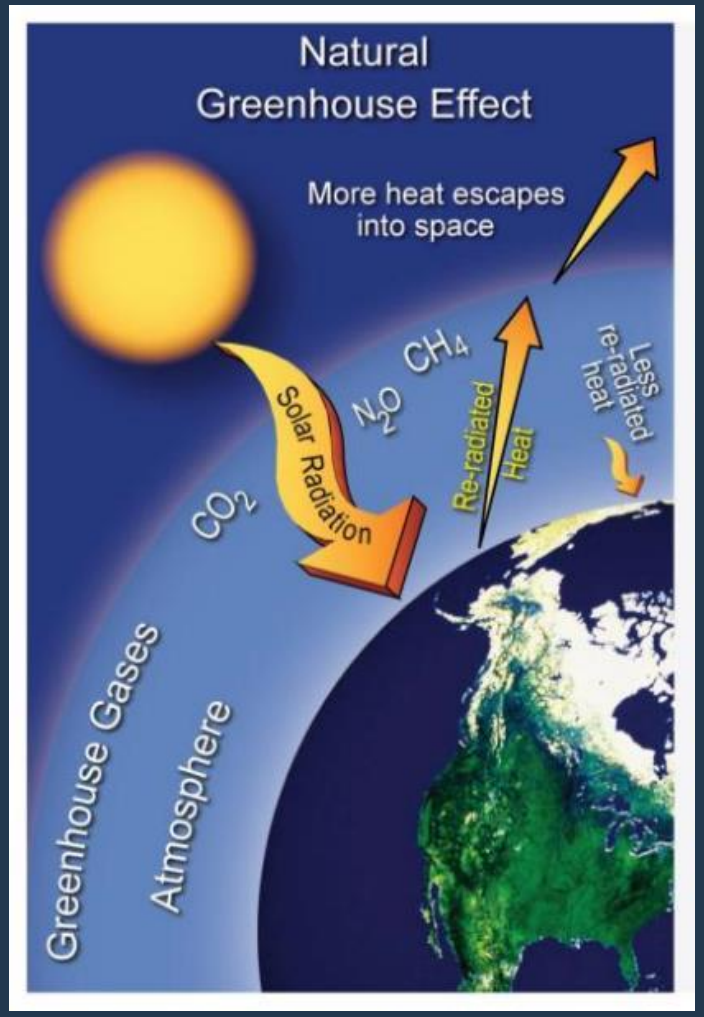
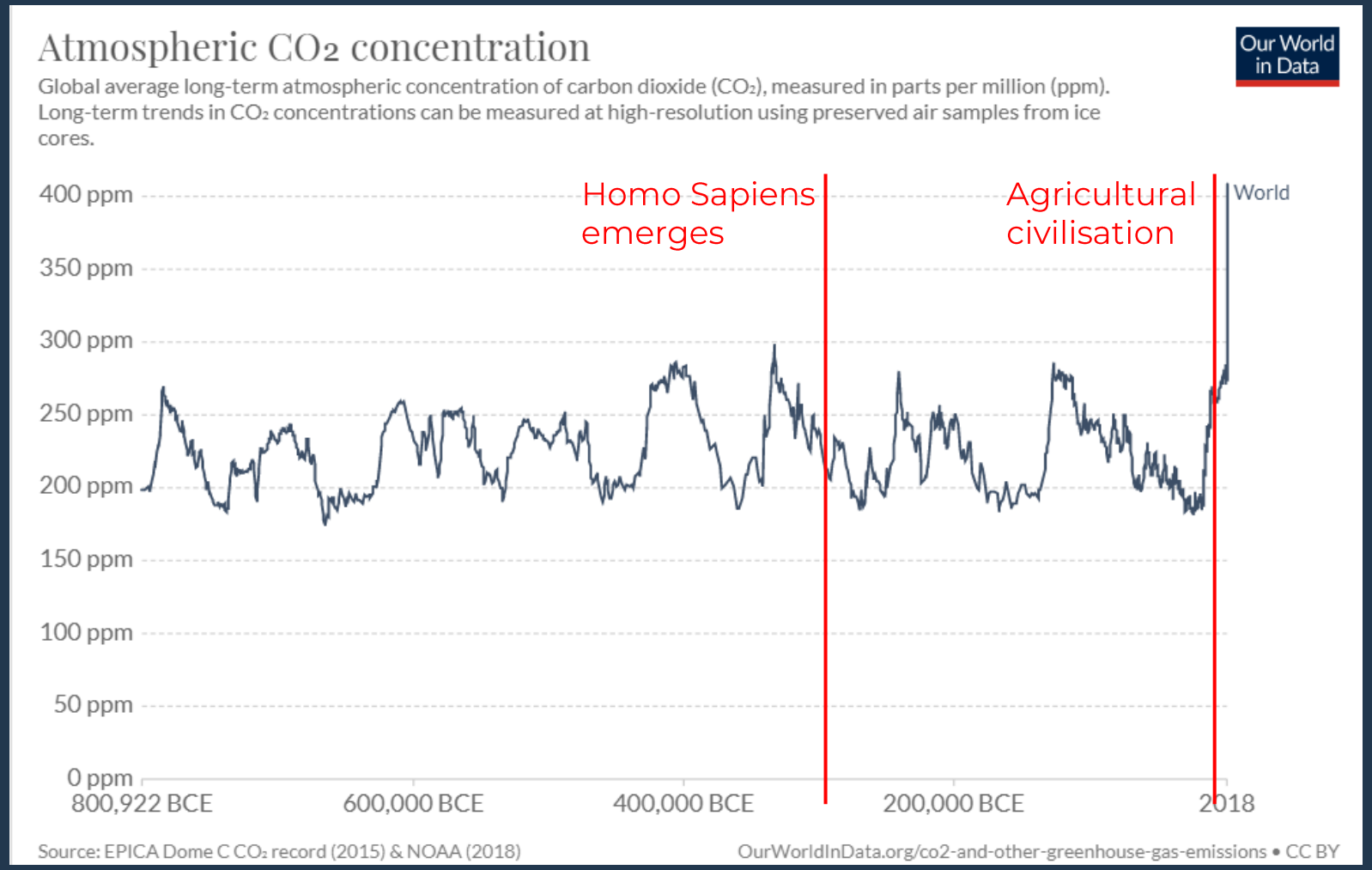
Audience Poll

SECTION 1: Understanding climate science and where carbon emissions come from

Greenhouse Gas Effect



Scene Setting: The last 800,000 years



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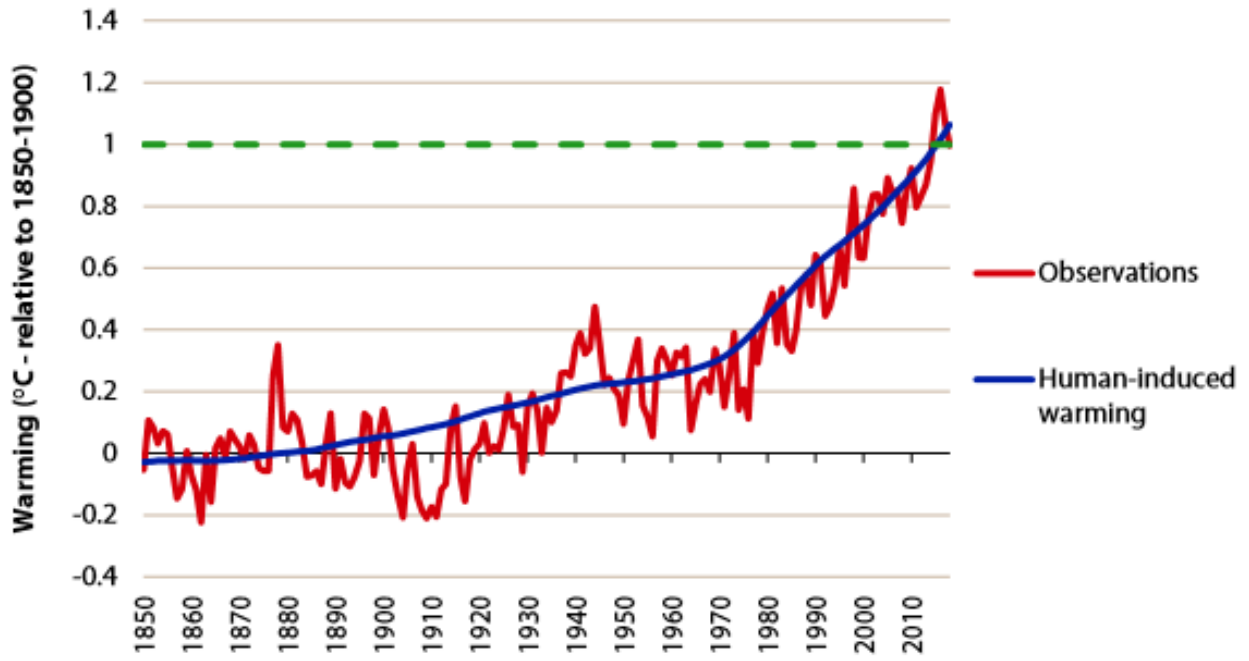
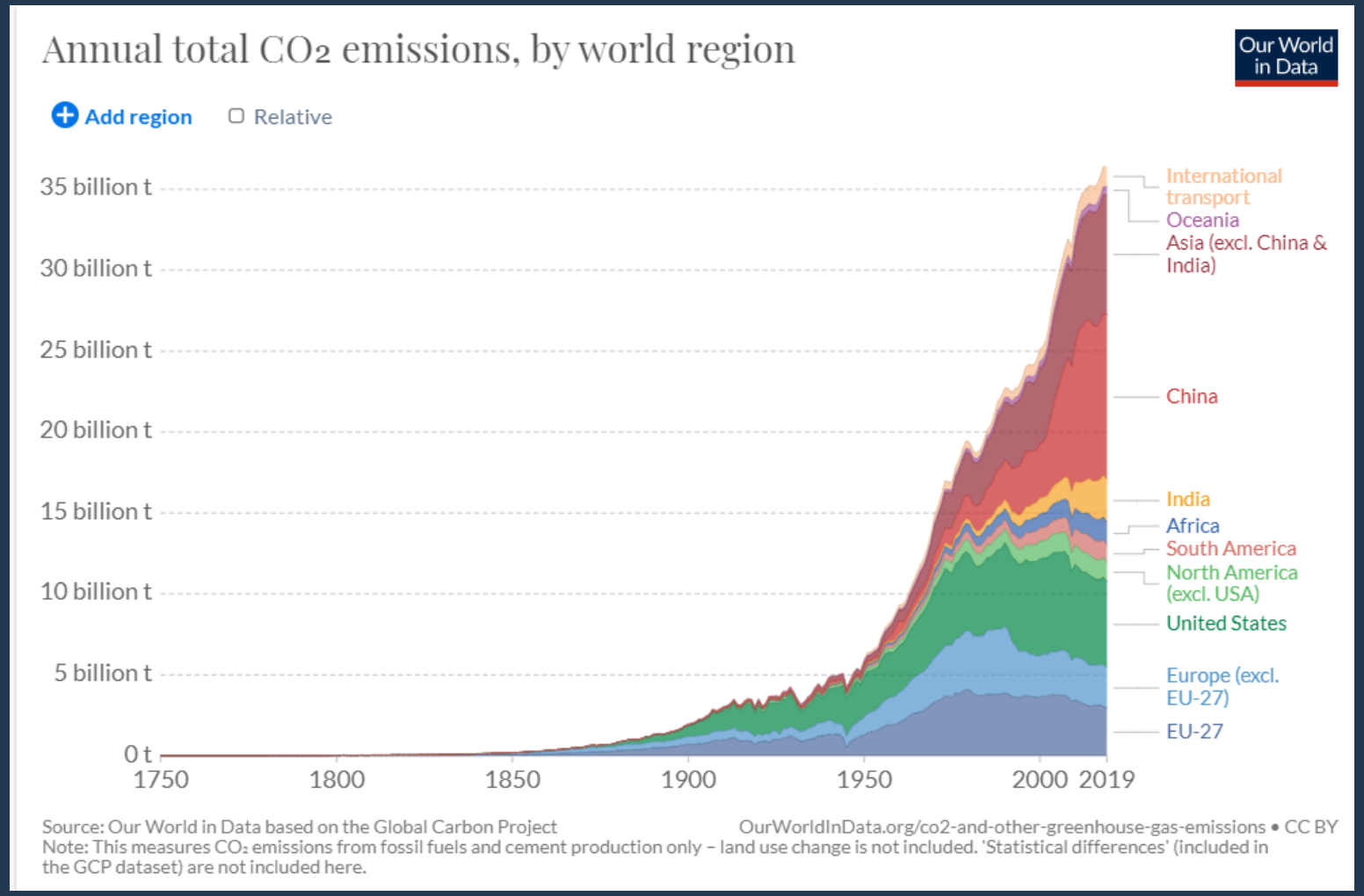
Scene Setting: The last 200 years

Figure 2.1. Observed and human-induced warming



Source: HadCRUT4, NOAA, NASA and Cowtan & Way datasets; IPCC (2018) *Chapter 1 - Framing and Context.*
Notes: 'Observations' are the average of the four datasets above as in IPCC-SR1.5 including for the full year of data for 2018.

Sharp increase in CO_2 emissions by global region



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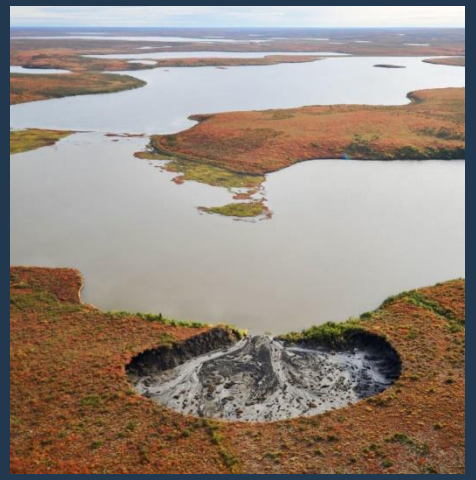
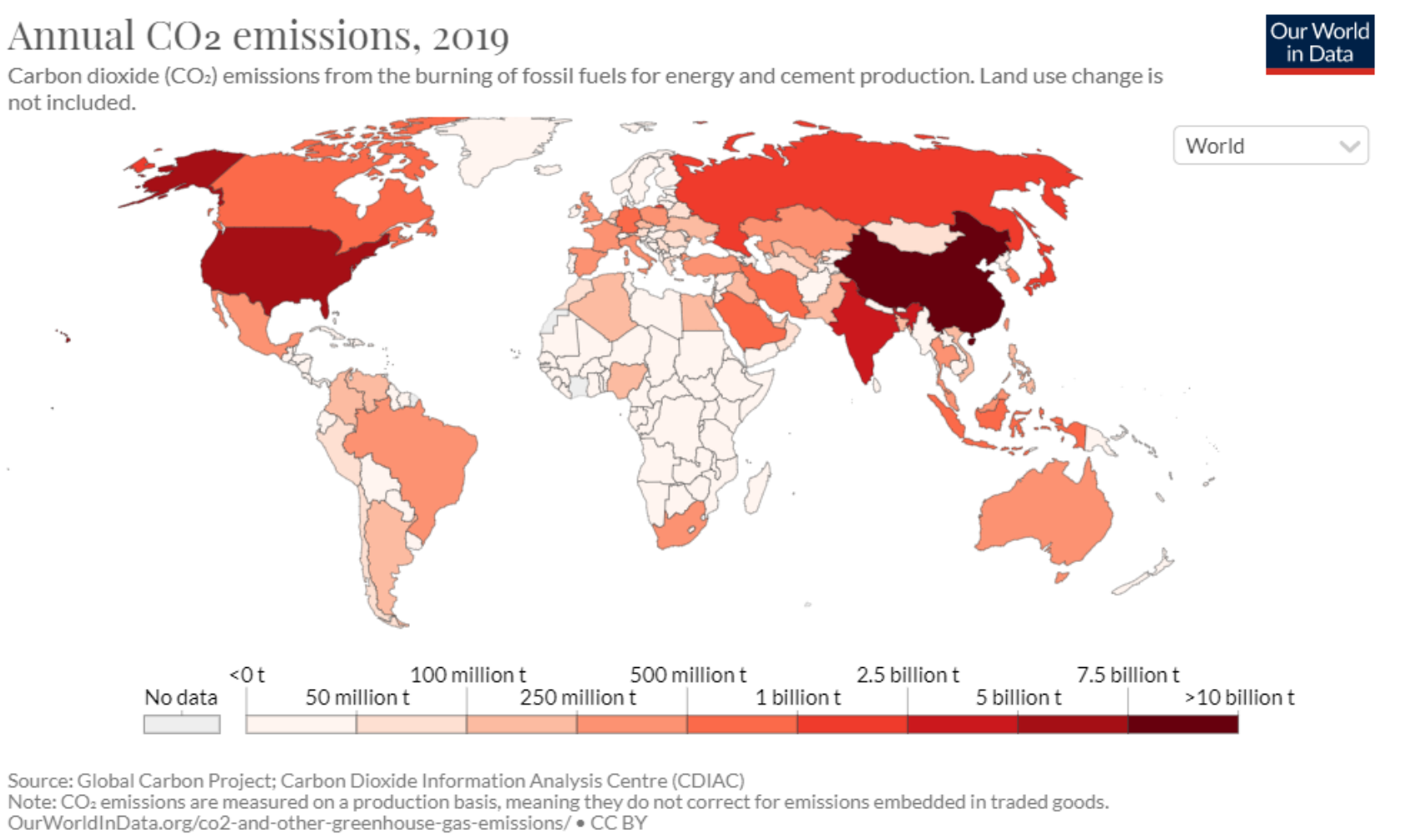
Scene Setting: The last few years



Annual CO_2 emissions by country, 2019

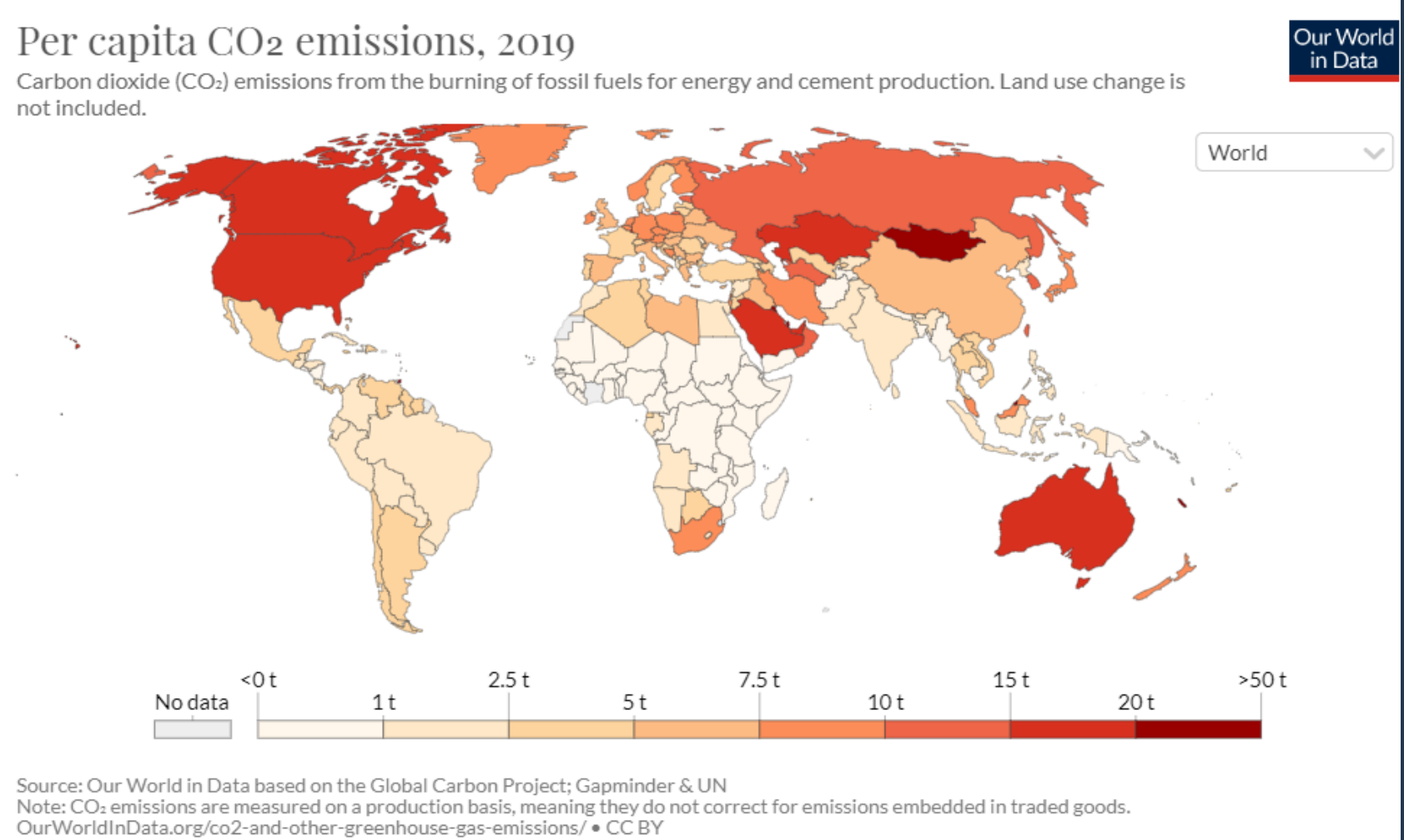


1. **China**: 10.2 billion tCO_2
   - 28%
2. **USA**: 5.3 billion tCO_2
   - 15%
3. **India**: 2.6 billion tCO_2
   - 7%
4. **Russia**: 1.7 billion tCO_2
   - 5%

...

18. **UK**: 370 million tCO_2
    - 1%
73. **Ireland**: 37 million tCO_2
    - 0.1%

Per capita CO_2 emissions



- **USA: 16 tCO_2 pp**
- **Russia: 11.5 tCO_2 pp**
- **Ireland: 7.6 t CO_2 pp**
- **China: 7.1 tCO_2 pp**
- **UK: 5.5 tCO_2 pp**
- **India: 1.9 tCO_2 pp**

But who's the highest?

- **Qatar at 38.7 tCO_2 pp !!**

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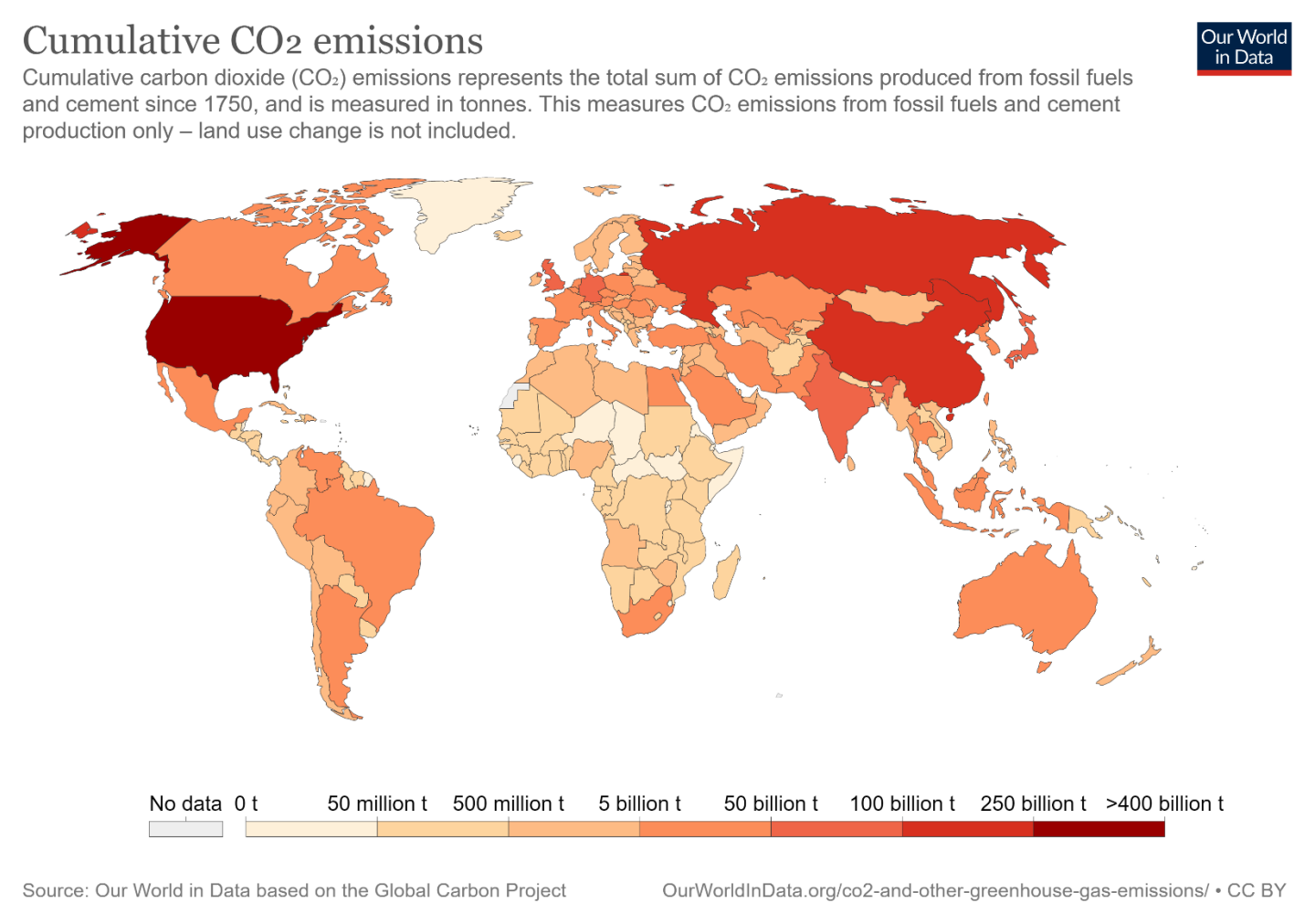
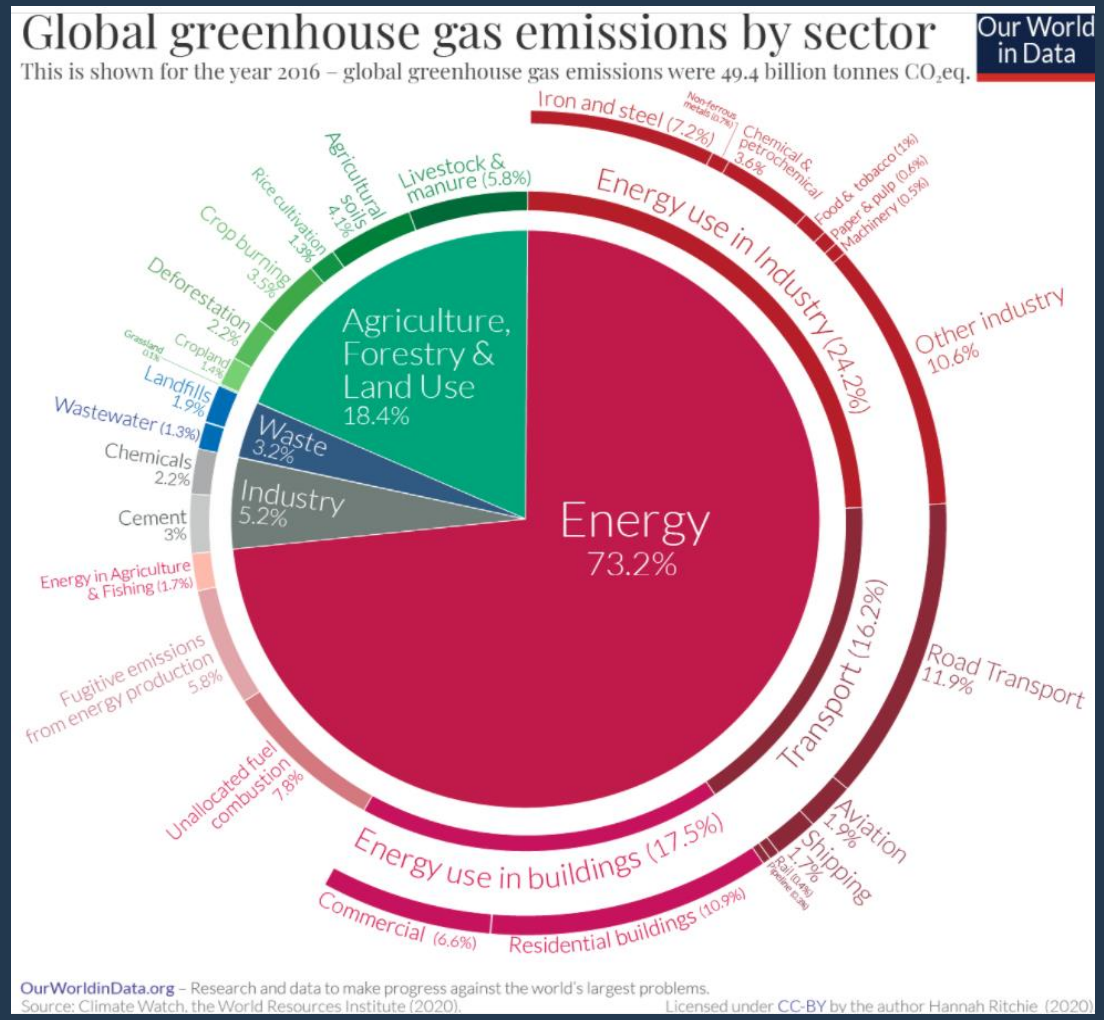
Cumulative CO_2 emissions



1. **USA: 400 $GtCO_2$ (25%)**
2. **EU-28: 370 $GtCO_2$ (22%)**
3. **China: 230 $GtCO_2$**
4. **Russia: 115 $GtCO_2$**
5. **Germany: 92 $GtCO_2$**
6. **United Kingdom: 78 $GtCO_2$**

Where do GHG emissions come from?



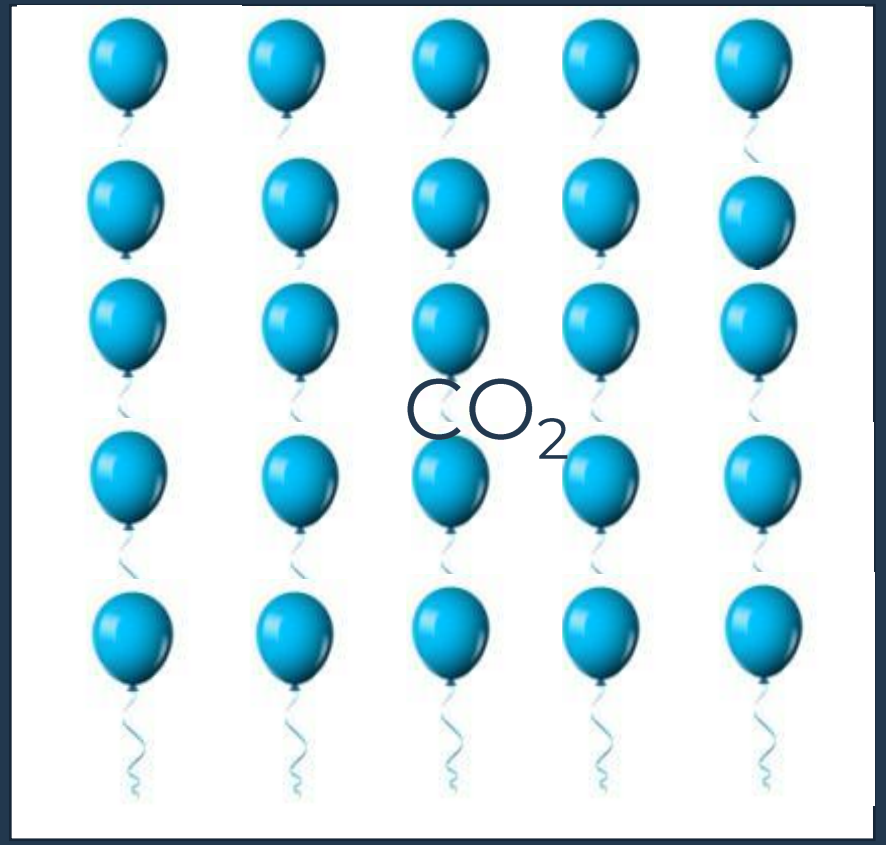
- **Industry 29.4%**
- **Agriculture & Forestry 21.1%**
- **Buildings 17.5%**
- **Transport 16.2%**

SECTION 2: Carbon literacy

Some fundamentals – Global Warming Potentials: GWP

- It's all relative…
  - CO_2: 1
  - CH_4: 28
  - N_2O: 265
  - SF_6: 23,500
  - HFCs: 4 – 12,400
  - PFCs: 6,630 – 11,100
  - NF_3: 16,100
  - Expressed as "tonnes of CO_2 equivalent"; tCO_2e

=



Comparing apples and pears: travel and food

500 p.km by train =

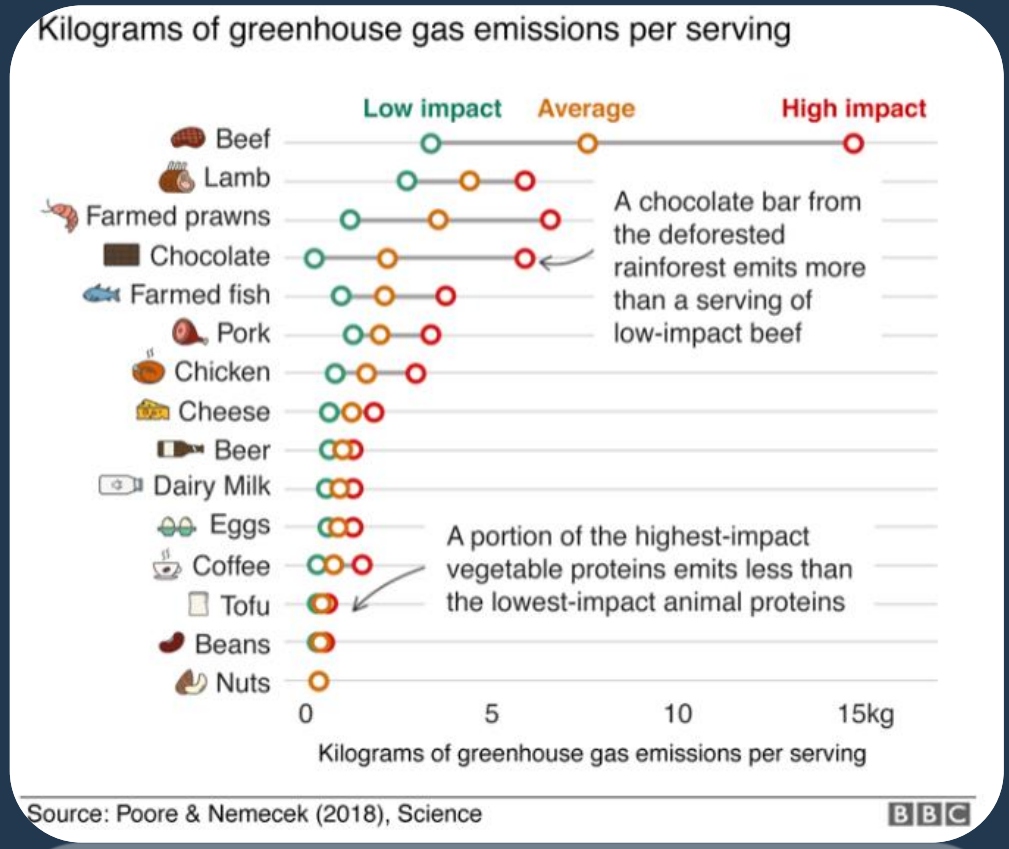
18 kg CO_2e

500 km by car =

84 kg CO_2e

500 p.km by airplane =

122 kg CO_2e



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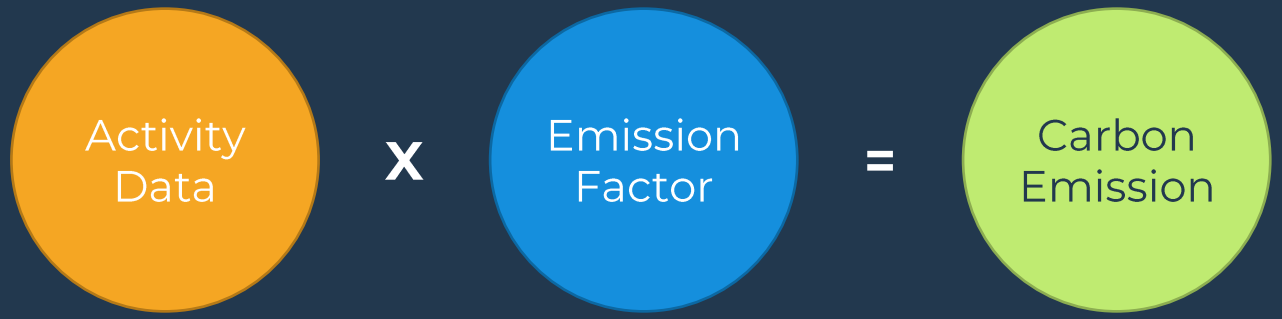
How to calculate a carbon footprint

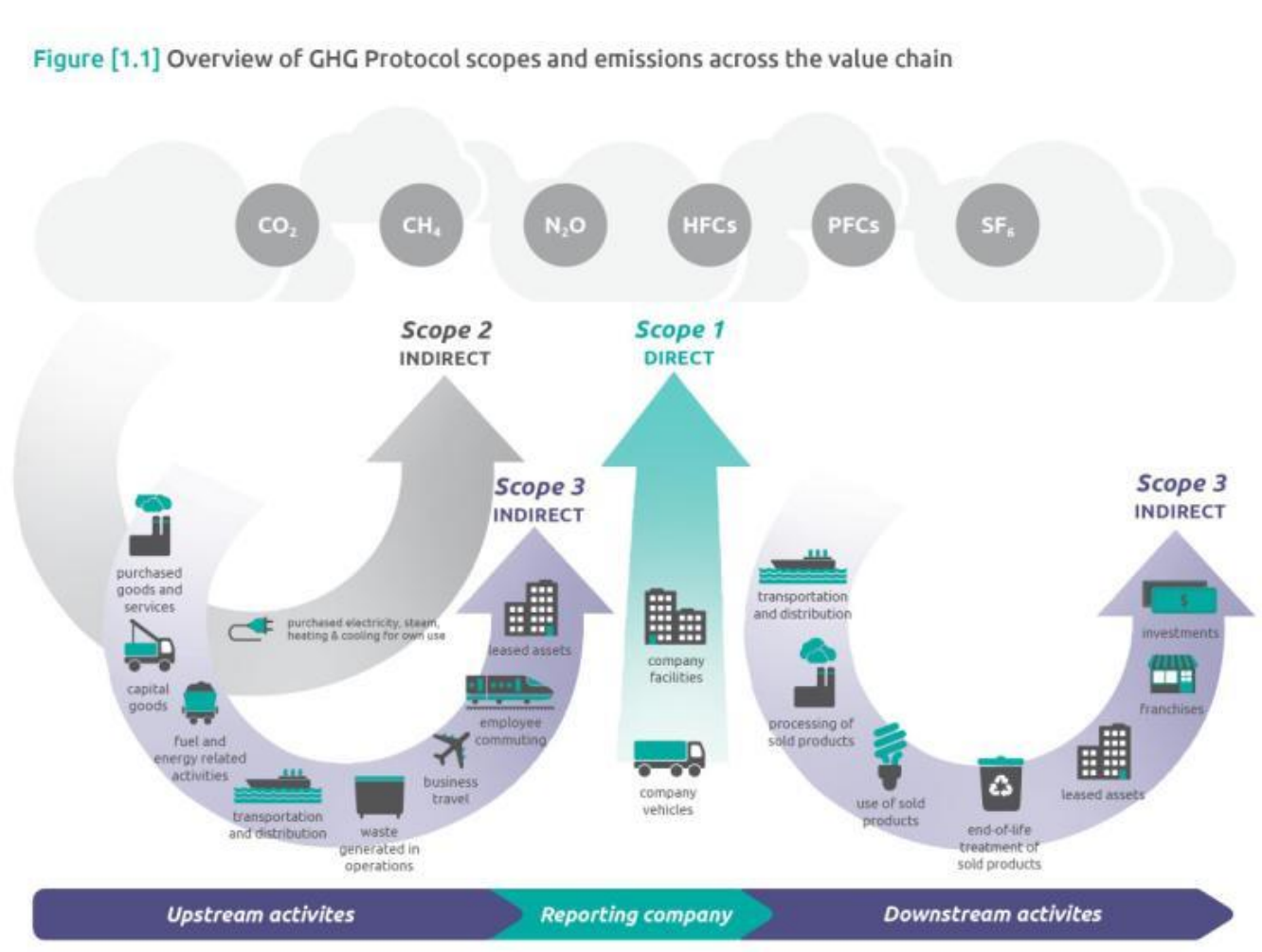
- **A carbon footprint is**



- **For example**

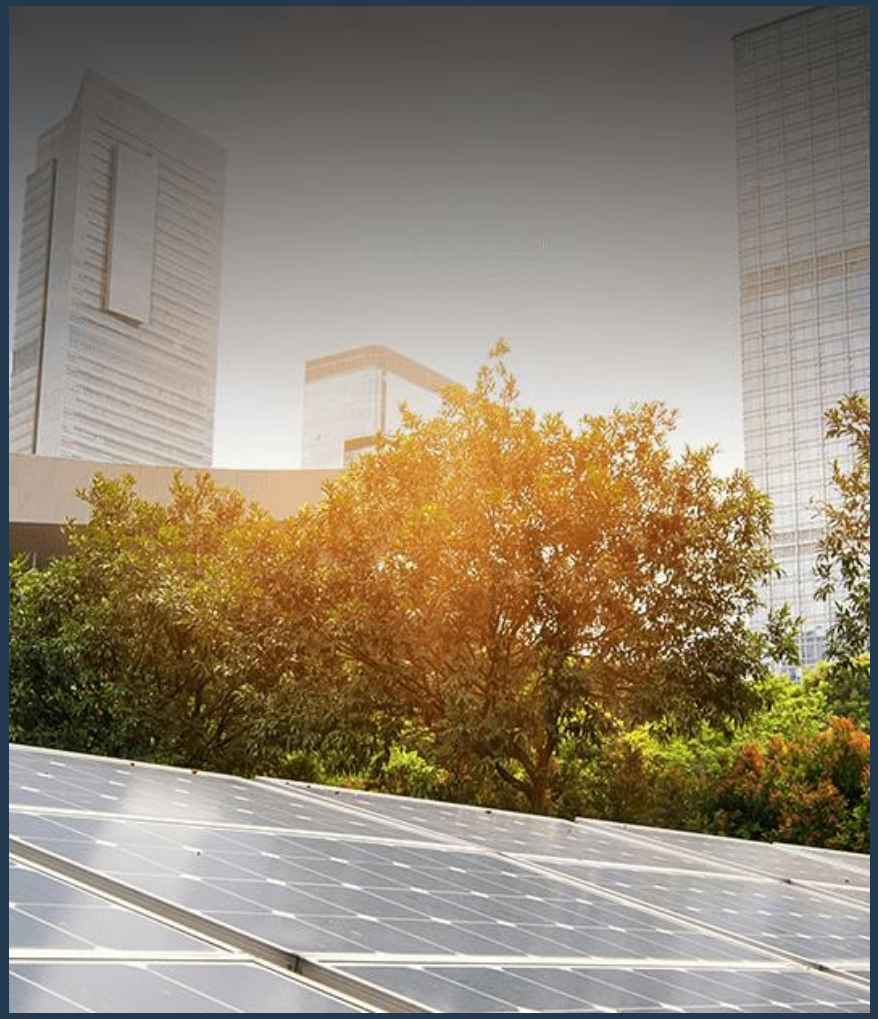
- **KgCO$_2$e ("equivalent")** takes into account all the main GHGs emitted: CO_2, CH_4 and N_2O, etc.

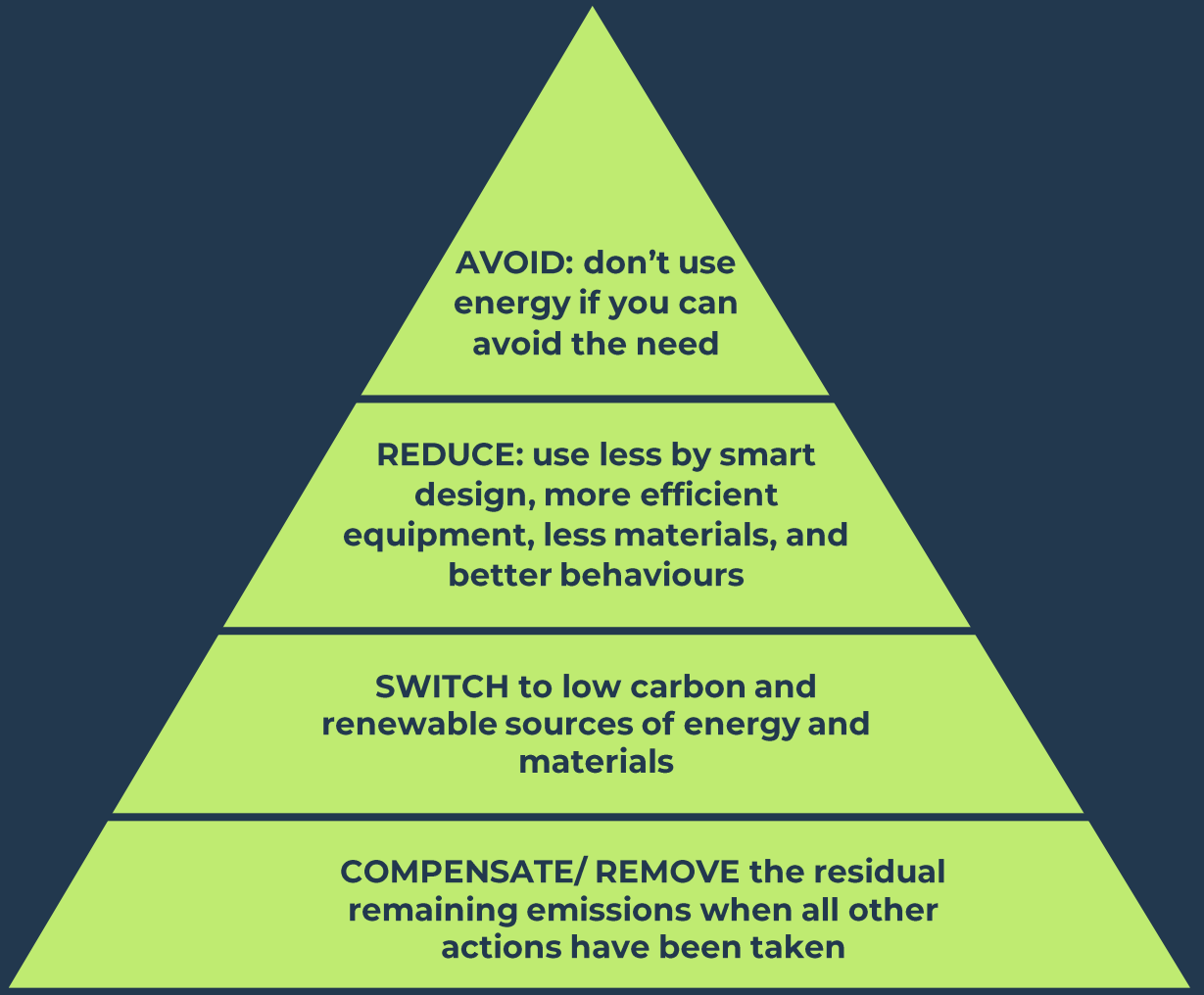
Operational Boundaries – Scopes



- **Direct emissions** are emissions from sources that are owned or controlled by the reporting company
- **Indirect emissions** are emissions that are a consequence of the activities of the company but occur at sources owned or controlled by another company

Use the Carbon & Energy Hierarchy

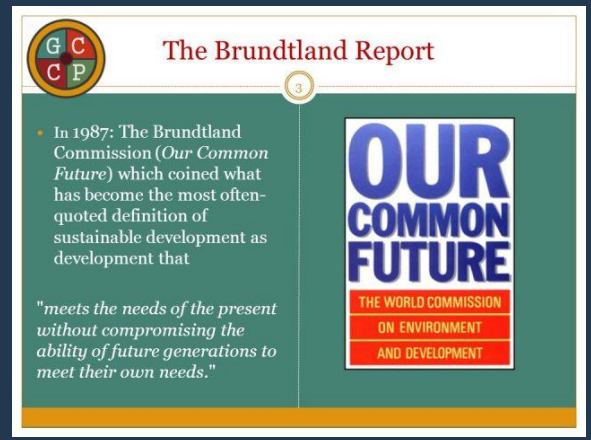




SECTION 3: Taking action: from global cooperation to individual behaviour


Global Cooperation

The backstory...



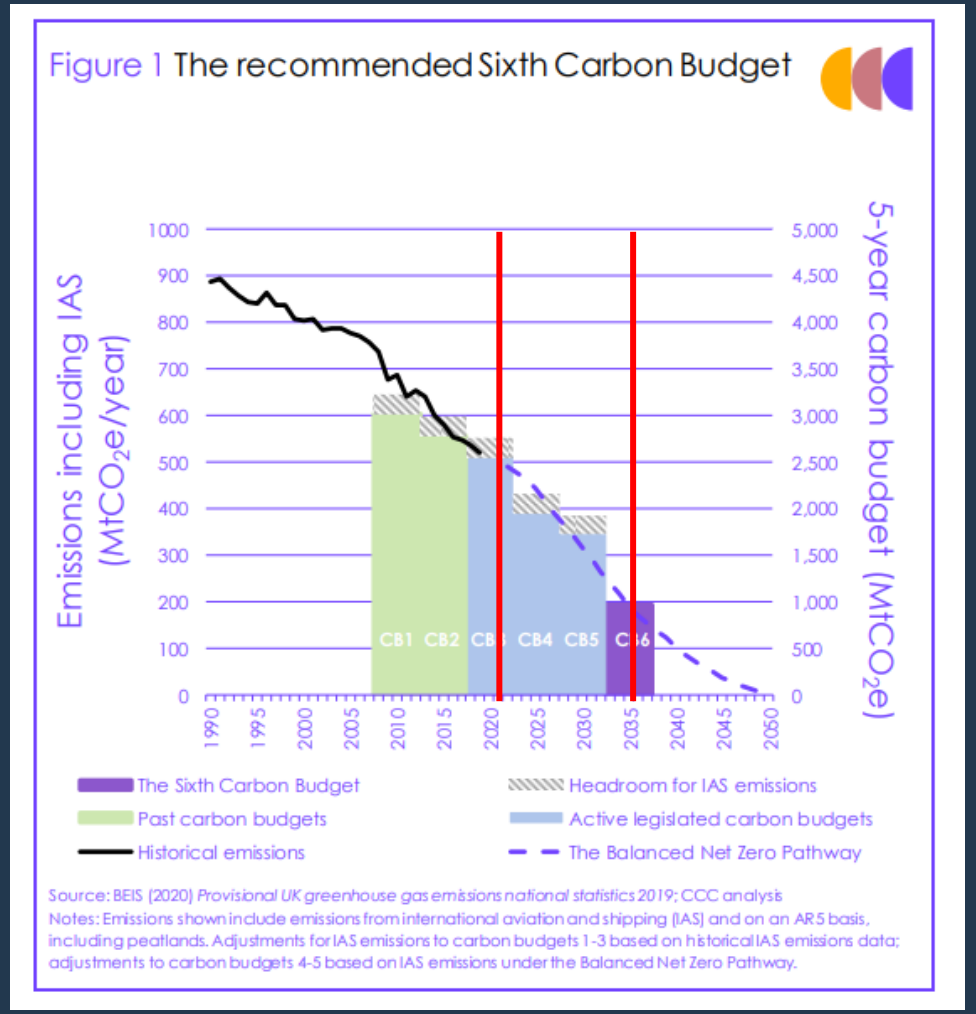
Paris Climate Change Agreement

- Significant progress on Kyoto
- Global engagement
- Nationally Determined Contributions
  - UK's is 68% reduction by 2030 vs 1990

UNITED NATIONS
PARIS CLIMATE AGREEMENT
SIGNING CEREMONY
22 APRIL 2016

The Law!

- UK Climate Change Act target of 100% reduction by 2050 – 'net zero'
- Scotland has legislated to hit net-zero by 2045
- Wales' target to reduce by 95% by 2050 but aiming for net zero
- Ireland has legislated to hit net-zero by 2050
- New intermediate target for UK of 78% by 2035 vs 1990 baseline




Individuals

Carbon Reduction Actions – at Home

At home

- Keep an eye on the thermostat – wear a jumper in winter!
- Insulate your house: attic, walls, windows and doors
- Switch to a provider of renewable energy such as SSE Airtricity, OVO, Good Energy or Ecotricity
- Use your equipment as efficiently as possible – eco modes

Diet

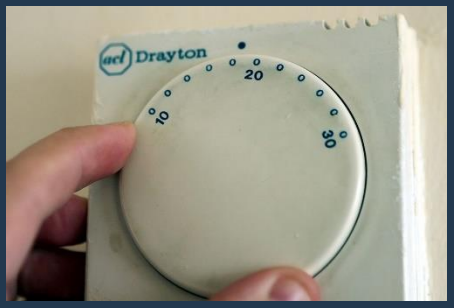
- Eat less meat and dairy; try other options
- Reduce food waste – only buy and cook what you need
- If you can, compost any food waste you do make

Travel

- Work from home, if you can, even if only part of the week
- Get public transport as much as you can
- Use a more efficient car – better mpg, or hybrid or even EV!
- Drive more smoothly and maintain your car
- Fly less often – get the train where you can: New network of sleeper trains planned: https://www.theguardian.com/travel/2021/jun/22/new-network-of-european-sleeper-overnight-trains-planned

At the shops

- Buy efficient equipment that can be maintained for a long lifetime, e.g. washing machine
- Don't always buy the latest model – think of the materials and waste as well as carbon
- Resist fast fashion – put it in the wardrobe and the fashion will come around again in 25 years!
- Avoid unnecessary packaging wherever you can, and recycle as much as you can



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Some of your DoNation pledges

Peter Major pledged Tap it
24th Jun 2021

At the moment, I buy roughly 4 bottles of water a week. Over the next two months, I pledge to pledge reduce my bottle buying by half, and instead drink from a reusable bottle.

Pledge status

7kg of CO_2 pledged

Ian Barfoot pledged Just hanging
23rd Jun 2021

I tend to use a tumble dryer from time to time, and I do about 15 washes a week. For the next two months, I pledge to hang dry my washing instead.

Ross Ford pledged Walk on
25th Jun 2021

I usually travel around by scooter or moped. I pledge to switch to walking for 5 journey(s) a week over the next two months. For each journey, I'll be walking (I may also skip on sunny days) for about 40 minutes.

Pledge status

9kg of CO_2 pledged

22 days left

Deborah Lauder pledged Eat up
1st Jul 2021

Currently, I throw away a lot of food. Over the next 2 months, I will minimize the food waste for 3 people in my home.

Pledge status

245kg of CO_2 pledged

40 days left

Pledge confirmed

Laura Hain pledged Tintin
7 days ago

I pledge to become a recycling ninja for the next two months, and master my recycling habits. At the moment I recycle only when I can be bothered.

Pledge status

6kg of CO_2 pledged

53 days left

Pledge confirmed

Rachael Robbins pledged Degrees cooler
6 days ago

For the next two months, I will turn down my heating by 1°C.

Pledge status

53kg of CO_2 pledged

54 days left

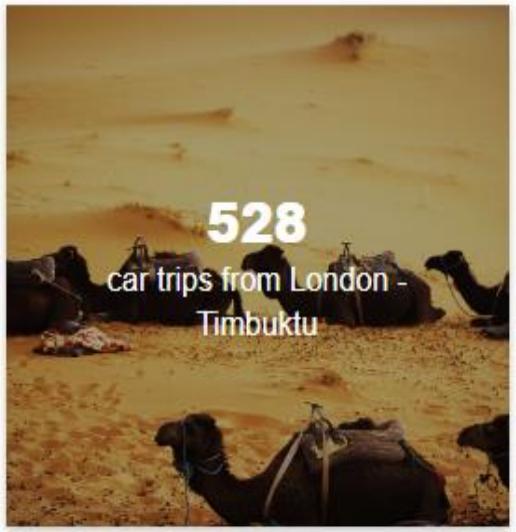
Pledge confirmed

Our collective impact

5,451
pledges

1,592
supporters

373,212kg
CO_2 pledged



The end of the training... for now...

...but the beginning of your carbon reduction plans!....

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Audience Poll

Questions, Answers and Feedback

Thank you!

James Cadman

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