Climate Change Target Setting

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carbon footprint

Sustainable Business Network

Basingstoke and Deane

Hart DISTRICT COUNCIL

RUSHMOOR BOROUGH COUNCIL

Today's Packed Programme

- **Legal & Market Updates** – Dr Wendy Buckley, SBN North Hants Chair/Carbon Footprint Ltd
- **Climate Change Target Setting** – Prof Ian Williams, University of Southampton
- **Climate Change Target Setting in Practice** – Joel Fernandez, Carbon Footprint Ltd
- **Case Study – Our Climate Change Targets** – Sharon Ball, Portals

Legislation & Market Trends

Dr Wendy Buckley
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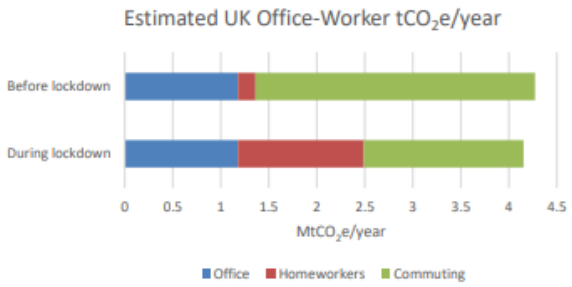
HomeWork Footprint is significant and not zero

- **60%** working population are currently HomeWorkers*
- **Continued HomeWorking** for an extended period of time
- **Reduced site energy use** if you reduce site energy use
- **Lower company emissions** (Saving ~0.3 tCO2e/office employee/year)
- **Yet, home energy consumption have increased & UK homes are lossy!**
- **Emissions differ from employee to employee**
- **Measure in your carbon assessment** for more holistic footprint



* sorce Working from home (WFH) statistics 2020 | Finder UK

What the UK's Brexit Deal Means for the Environment

- **UK and EU's Net Zero Carbon by 2050 commitments a key condition for future cooperation**.

- If the UK fails to keep pace with EU levels of environmental protection and this affects trade or investment, the EU could take **proportionate measures in response, such as introducing tariffs.**

- The European Court of Justice will not be involved after pressure from the UK

- Will the UK be weak in protecting environmental standards if repercussions are rare

- ***Post Brexit Environmental Watchdog – no update***

UK's new target ahead of COP26 UN Climate Summit

- UK hosts UN Climate Change Conference (**COP26**) in Glasgow November 2021.

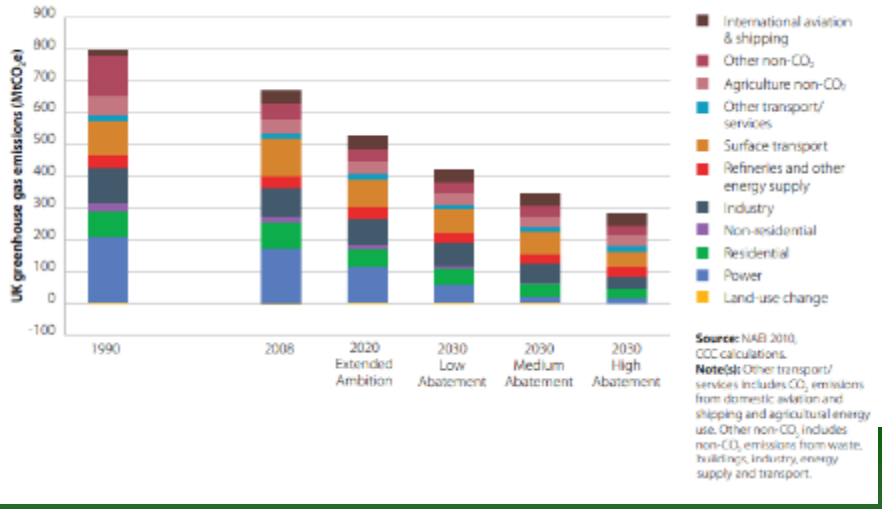
- **Ahead of this, the UK have announced an increase in its NDC (Nationally Disclosed Contribution) to a 68% reduction in emissions by 2030 (up from 57%).**
  - **EU target currently 55%**

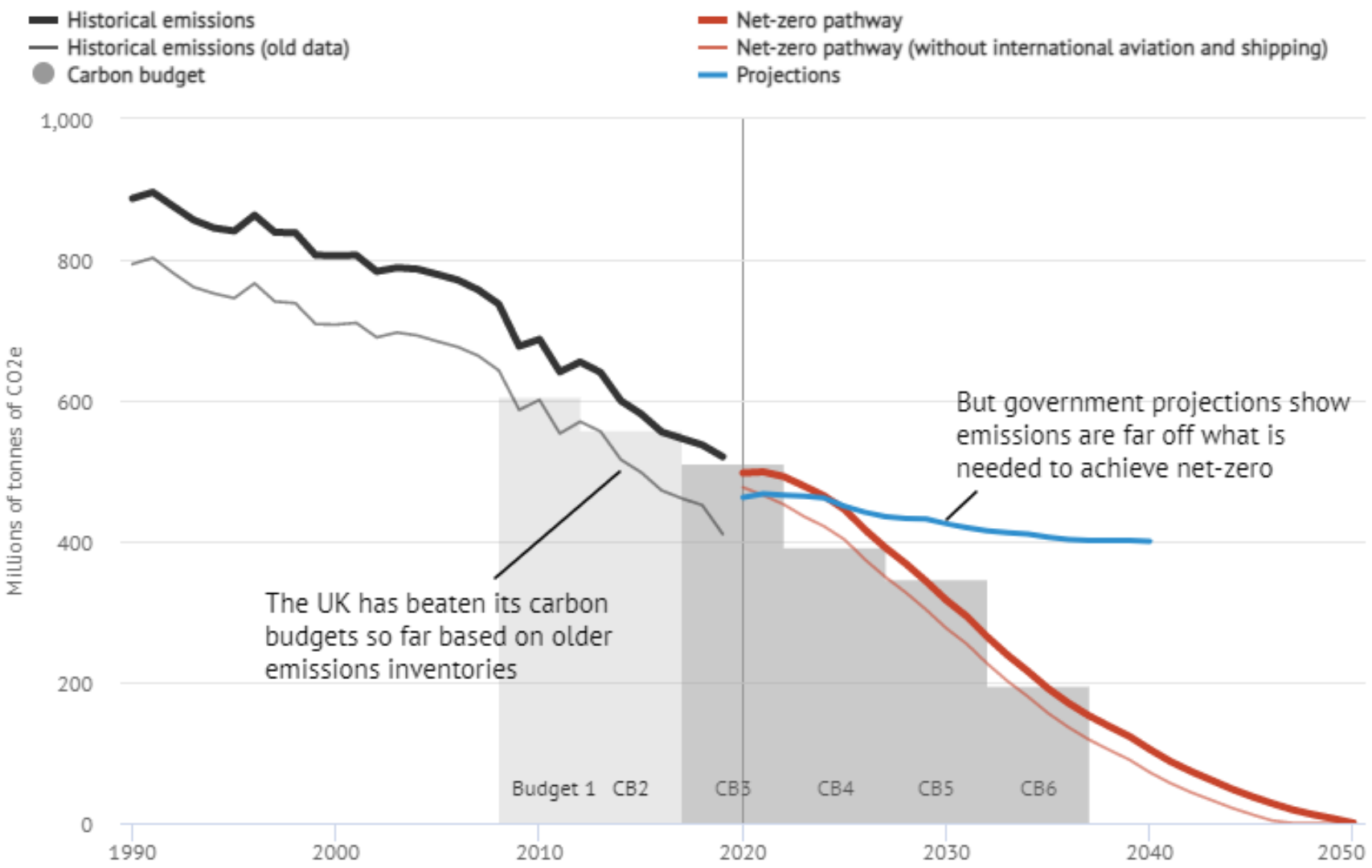
- **Net Zero Carbon by 2050**

- Calls to be **more ambitious** with opportunities to drive green jobs and low-carbon economic growth **following pandemic.**

The UK will is set to miss its 4th & 5th Carbon Budgets says Committee of Climate Change

- Large National Grid reductions (grid net zero target)
- Estimate for costs is now below 1% of GDP throughout the next 30 years.
  - Savings such as from reduced fuel consumption and therefore cost, cancel out the investment costs
- Not currently on track to meet 5th carbon budget
  - This is based on projection data from BEIS (2020) – currently projected reduction of ~57% by 2040
  - Recommend a 78% reduction in UK territorial emissions between 1990 and 2035 and ramping up of policies & action, particularly for transport, agriculture and residential.





Few fines reported from Environmental Agency (EA)…delayed by pandemic

- **£2.1 million confiscation order for John Bruce labelled 'career criminal' – case concluded 22nd Dec**

- Prosecuted for six offences for dumping, burying and burning 25,000 cubic metres of waste at the farm.

- **Given three months to pay else faces a 7 year jail sentence**

- Received a 26-month custodial sentence in May 2018 for operating an illegal waste and a second jail sentence for a permit breach.

- One of the biggest orders the EA has gained. Shows that they're not just prosecuting those who run illegal waste sites, but also coming after getting back the profits they made from their illegal activities and to recoup taxpayers' money spent on pursuing them.

EA action slowed down during the pandemic

- The EA has dramatically reduced the frequency that it attends water pollution incidents amid the pandemic

- Concerns this is allowing companies to break environmental regulations with impunity.

- April - August attended **just 292 water pollution incidents**
  - 1,726 were attended during the same period in 2019
  - Number of reports of pollution incidents remaining high
  - Released report showing that only 14% of the UK's watercourses are in good ecological health

- The head of the EA (Sir James Bevan) said that post-Brexit he wanted to **end the one-out-all-out rule** to allow rivers to be judged on one criterion instead of all four.
  - This would dramatically increase the number of rivers judged to be in a good state overnight.

- The EA is accountable to Parliament through ministers

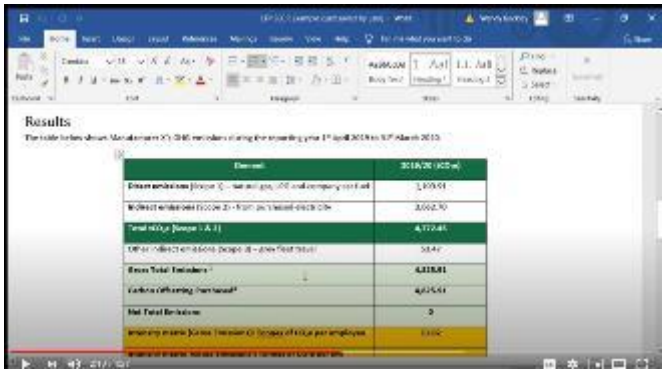
If your large businesses just finished its financial year – you need to complete your first Streamlined Energy & Carbon Report (SECR)

- Companies now reporting – for financial years starting on or after 1st April 2019

- Company or LLP qualifies if satisfies **two or more** of the following requirements: (exempt if use <40MWh of energy)
  - **Turnover £36 million or more**
  - **Balance sheet total £18 million or more**
  - **Number of employees 250 or more**

- Enforced by **The Conduct Committee of the Financial Reporting Council**

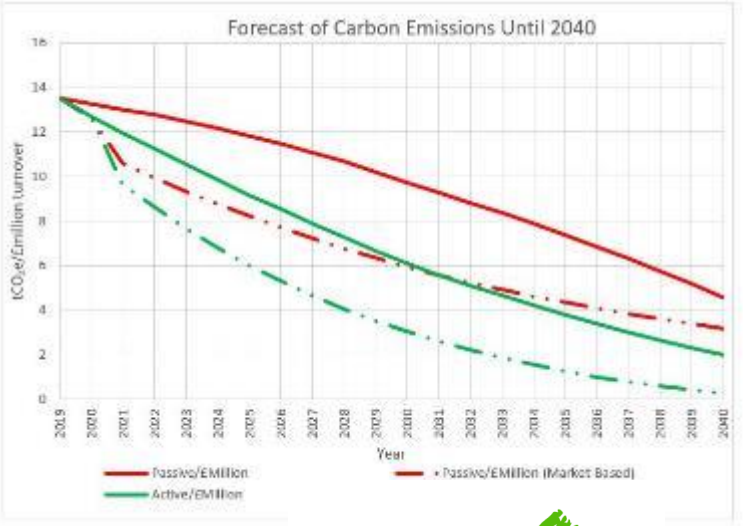
Videos - https://www.carbonfootprint.com/secr.html



Phase outs to be aware of.

- **Installation of gas boilers banned in new homes from 2025**
  - **Move to greener options such as air/ground source heat pumps, solar PV & batteries**
- **Ban on new fossil fuel cars by 2030 (incl mild & plug-in hybrids)**
- **From 1st Jan 2021, virgin R404A will not be permitted for maintenance& servicing.**
  - **Recovered or reclaimed R404a can be used until the end of 2030.**

Freedom Flight



VEGANUARY

Images courtesy – BBC, Netflix, Reuters, The Guardian

References / Useful Links

- Homework Footprint - in SBN Session https://youtu.be/cRq2MB2YDbc
- Environment Agency slashes number of water pollution incident visits – The Guardian
  Environment Agency slashes number of water pollution incident visits | Environment Agency | The Guardian

- Data reveals just 14% of good ecological standard and none of good chemical standard – The Guardian
- https://www.theguardian.com/environment/2020/sep/17/rivers-in-england-fail-pollution-tests-due-to-sewage-and-chemicals

- Brexit deal threatens UK labour and climate standards, thinktank warns – The Guardian
- Brexit deal threatens UK labour and climate standards, thinktank warns | Politics | The Guardian

- Environment Agency chief supports plan to weaken river pollution rules – The Guardian
  Environment Agency chief supports plan to weaken river pollution rules | Rivers | The Guardian

- How Brexit deal could force UK and EU to stick to tougher climate targets – The Independent
- How Brexit deal could force UK and EU to stick to tougher climate targets | The Independent

- CCC: UK must cut emissions '78% by 2035' to be on course for net-zero goal – Carbon Brief
- CCC: UK must cut emissions '78% by 2035' to be on course for net-zero goal | Carbon Brief

- The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf (theccc.org.uk)

- Updated energy and emissions projections 2019 (publishing.service.gov.uk)

- ENDS Report Fines Monitor : https://www.endsreport.com/fines-monitor

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Image source: www.bbc.co.uk (last accessed April 2019)

Setting Science-based Climate Change Targets for Business

Sustainable Business Network Winter Meeting, 8 January 2021

Ian Williams
Professor of Applied Environmental Science
Associate Dean (Enterprise)
Faculty of Engineering and Physical Sciences,
University of Southampton, UK.

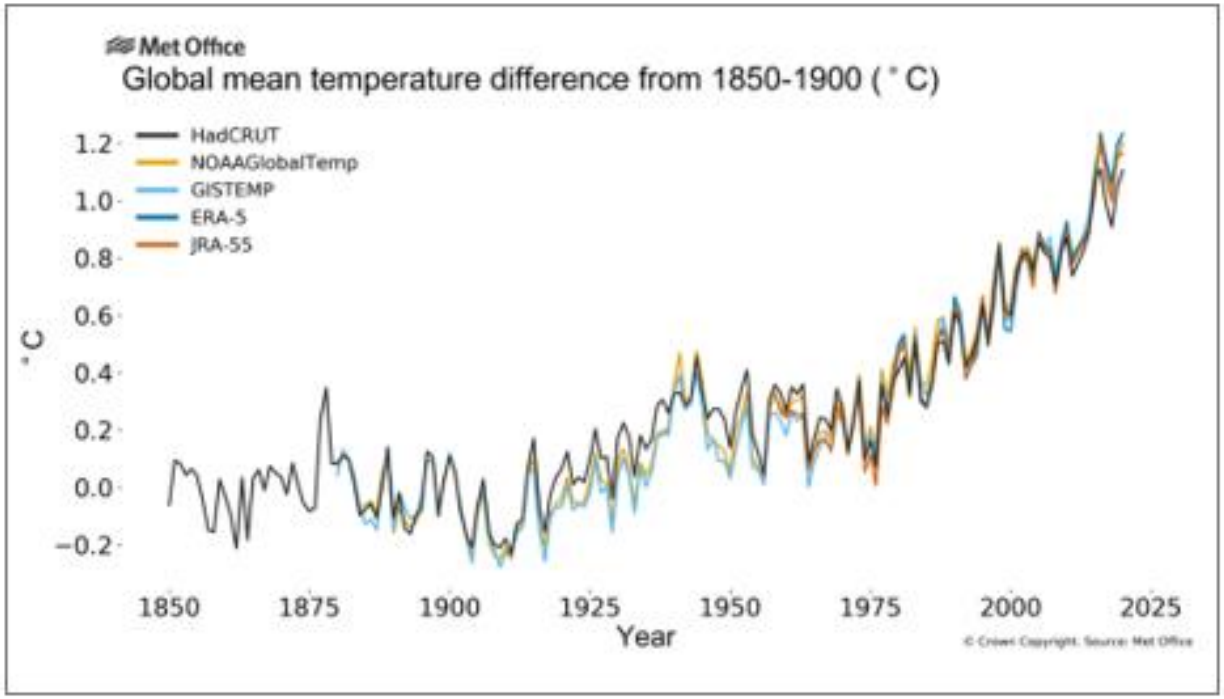
idw@soton.ac.uk; @EnviroTaff

Source: www.bbc.co.uk (last accessed October 2019)

World Meteorological Organization:

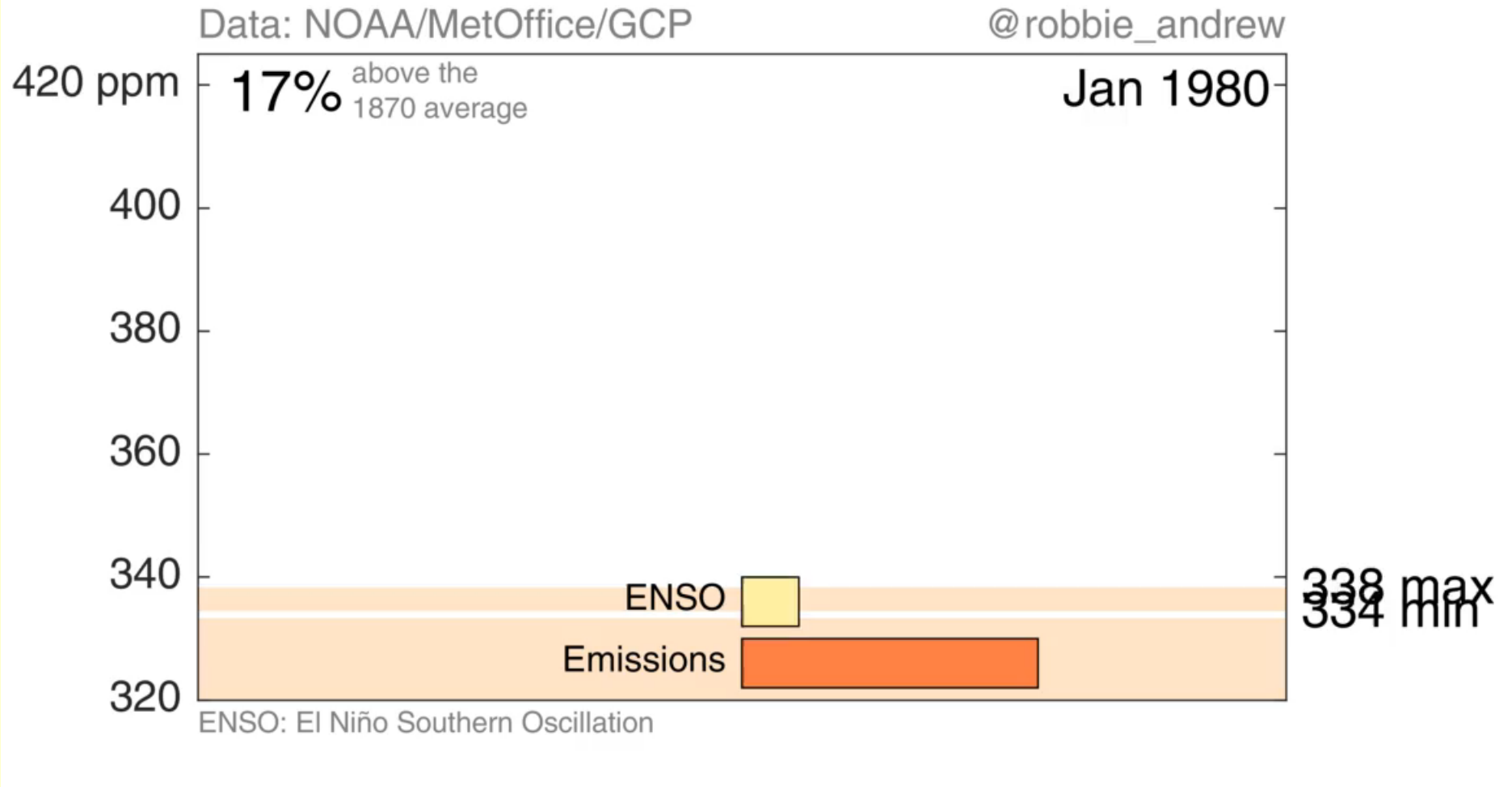
- Climate change continued its relentless march in 2020
- Year is likely one of three warmest years on record
- 2011-2020 warmest decade on record
- Warmest six years all since 2015
- Despite COVID-19 lockdown, atmospheric concentrations of greenhouse gases continued to rise
- Av. global temperature in 2020 ~1.2 °C above pre-industrial (1850-1900) level
- ~1 in 5 chance of it temporarily exceeding 1.5 °C by 2024
- Despite La Niña (has cooling effect on global temp^{s})

Source: www.bbc.co.uk (last accessed October 2019



Global annual mean temperature difference from preindustrial conditions (1850–1900). The two reanalyses (ERA5 and JRA-55) are aligned with the in situ datasets (HadCRUT, NOAAGlobalTemp and GISTEMP) over the reference period 1981–2010. Data for 2020 are from January to October.

CO_2 emissions and concentrations



Source: https://folk.universitetetioslo.no/roberan/t/CO2_drivers.shtml (Last accessed January 2021)

Evidence for rapid climate change is compelling:

- Global temperature rise
- Warming oceans
- Shrinking ice sheets
- Glacial retreat
- Decreased snow cover
- Sea level rise
- Declining Arctic sea ice
- Extreme events
- Ocean acidification

Image source: climate.nasa.gov (last accessed June 2019)

Environmental Research Letters

REPLY

Consensus on consensus: a synthesis of consensus estimates on human-caused global warming

John Cook[1,2,3,16], Naomi Oreskes[4], Peter T Doran[5], William R L Anderegg[6,7], Bart Verheggen[8], Ed W Maibach[9], J Stuart Carlton[10], Stephan Lewandowsky[11,12], Andrew G Skuce[12,13], Sarah A Green[13], Dana Nuccitelli[3], Peter Jacobs[9], Mark Richardson[14], Bärbel Winkler[3], Rob Painting[3] and Ken Rice[15]

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[13] Department of Chemistry, Michigan Technological University, USA
[14] University of Reading, Reading, UK, now at Jet Propulsion Lab, California Institute of Technology, Pasadena, USA
[15] Institute for Astronomy, University of Edinburgh, Edinburgh, UK
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Keywords: scientific consensus, climate change, anthropogenic global warming

Supplementary material for this article is available online

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Abstract

The consensus that humans are causing recent global warming is shared by 90%–100% of publishing climate scientists according to six independent studies by co-authors of this paper. Those results are consistent with the 97% consensus reported by Cook *et al* (*Environ. Res. Lett.* 8 024024) based on 11 944 abstracts of research papers, of which 4014 took a position on the cause of recent global warming. A survey of authors of those papers ($N = 2412$ papers) also supported a 97% consensus. Tol (2016 *Environ. Res. Lett.* 11 048001) comes to a different conclusion using results from surveys of non-experts such as economic geologists and a self-selected group of those who reject the consensus. We demonstrate that this outcome is not unexpected because the level of consensus correlates with expertise in climate science. At one point, Tol also reduces the apparent consensus by assuming that abstracts that do not explicitly state the cause of global warming ('no position') represent non-endorsement, an approach that if applied elsewhere would reject consensus on well-established theories such as plate tectonics. We examine the available studies and conclude that the finding of 97% consensus in published climate research is robust and consistent with other surveys of climate scientists and peer-reviewed studies.

"The finding of 97% consensus in published climate research is robust and consistent"

Source: www.bbc.co.uk (last accessed October 2019)

WE MUST MOVE FAST! AN EXAMPLE:

- Home heating - biggest challenge in terms of reducing UK emissions
- Accounts for average 21% of a household's carbon footprint
- UK - 30 million homes and 30 years to decarbonise

Chris Stark (UK Committee on Climate Change):

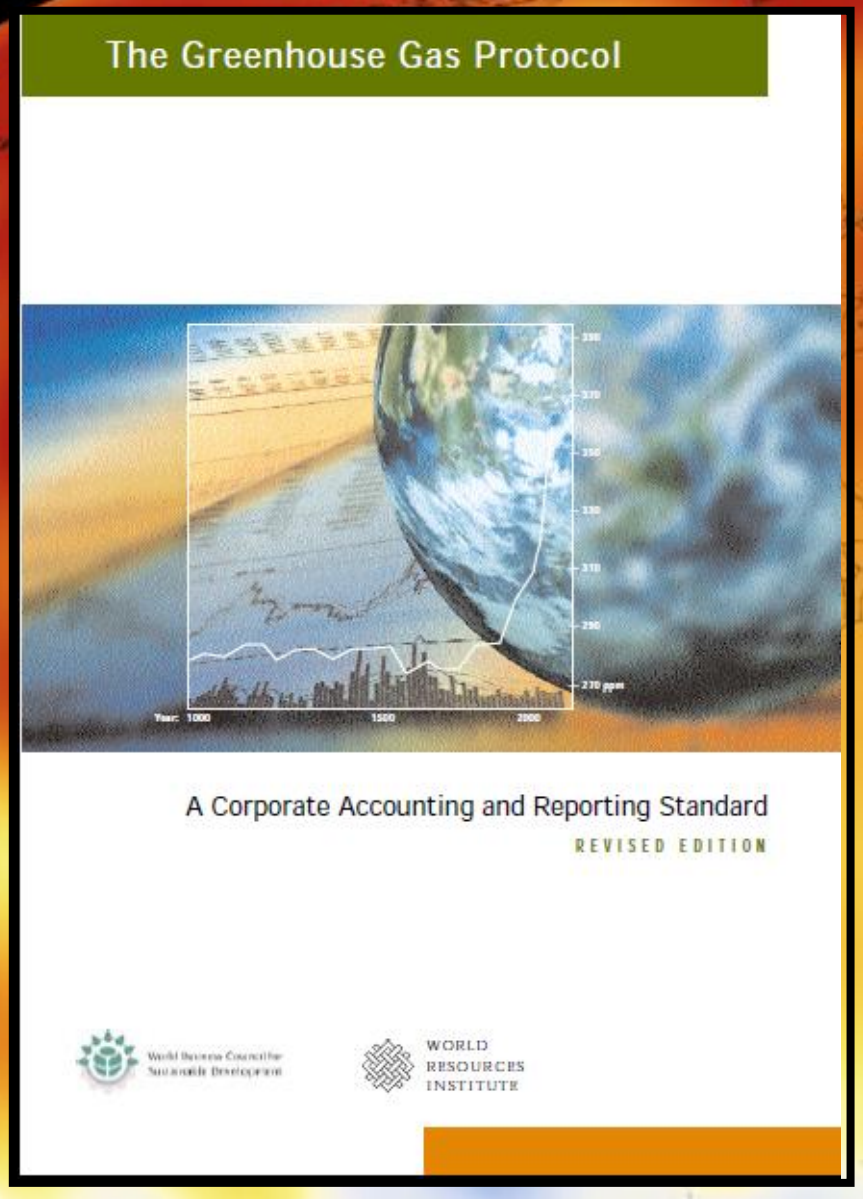
“Simple arithmetic suggests we need to decarbonise one million homes every year, starting now”

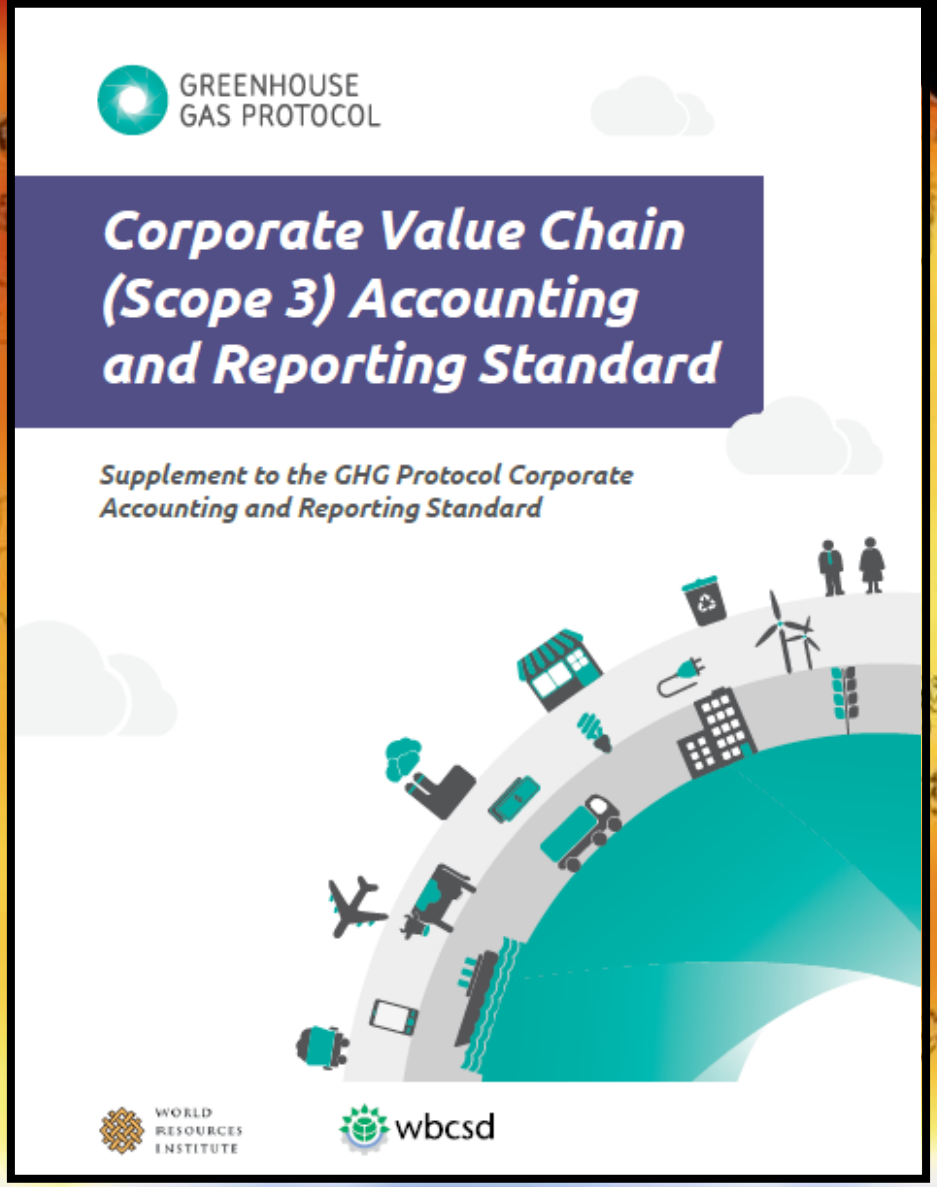
Source: www.un.org (last accessed September 2017)

What can business do?

SET A SCIENCE-BASED TARGET

1. Commit to setting a science-based target.
2. Develop your target(s) in line with science-based criteria.
3. Validate your target (needs scientific expertise).
4. Announce your target and inform your stakeholders.
5. Disclose your progress.
6. Conduct an annual review & make necessary amendments.





Recommend these standards are used

Science-based target setting criteria

GHG Emissions Inventory and Target Boundary

1. Scopes: Targets to cover company-wide scope 1 and scope 2 emissions.
2. Significance thresholds: May exclude up to 5% of scope 1 and scope 2 emissions combined in boundary of inventory and target.
3. Greenhouse gases: Targets to cover all relevant GHGs.
4. Bioenergy accounting: Direct CO_2 emissions from combustion of biofuels and/or biomass feedstocks, plus associated sequestered C, to be included in inventory and target boundary. If accounted for as neutral, provide justification of underlying assumptions.
5. Subsidiaries: Recommended companies submit targets only at parent- or group-level, not at subsidiary level.

Science-based target setting criteria

Timeframe

6. Base and target years: Targets to cover min.5 years and max.15 years.
7. Progress to date: Targets already achieved not acceptable.

Science-based target setting criteria

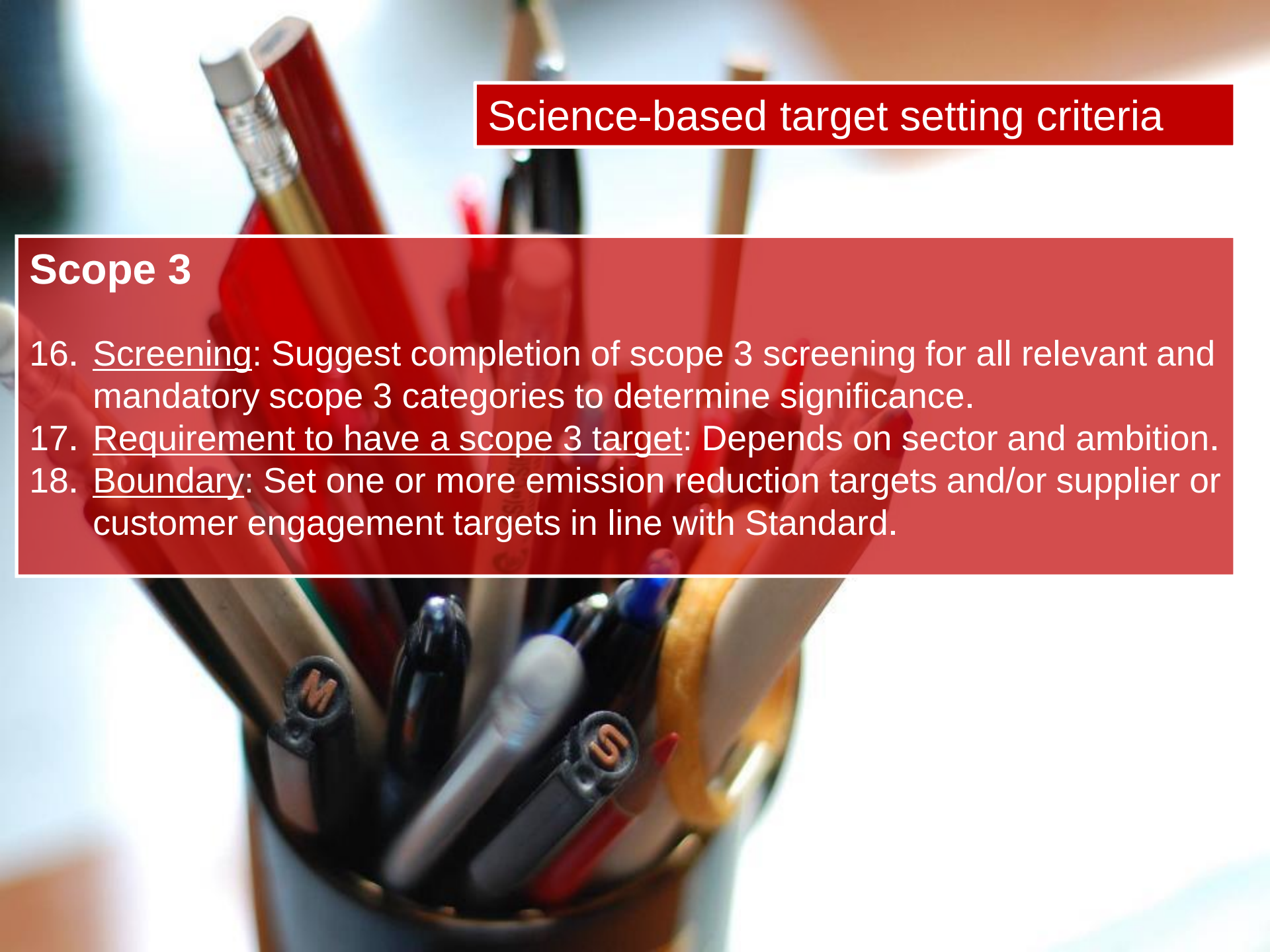
Ambition

8. Level of ambition: At minimum, scopes 1 and 2 targets must be consistent with decarbonization required to keep global temperature increase to well-below 2˚ C cf pre-industrial temperatures.
9. Absolute vs. intensity: Intensity targets and absolute reductions for scope 1 and scope 2 emissions consistent with well-below 2˚ C goal.
10. Method validity: Use latest version of approved methods and tools.
11. Combined scope targets: Targets that combine scopes (e.g. 1+2 or 1+2+3) permitted; scope 1+2 portion in line with well-below 2˚ C.
12. Offsets: Not counted as emissions reduction towards targets.
13. Avoided emissions: Do not count toward science-based targets.

Science-based target setting criteria

Scope 2

14. Approaches: Use a location- or market-based approach to calculate base year emissions and to track performance against target. Use single, consistent approach for setting and tracking progress (e.g. using location-based approach for both target setting and progress tracking).
15. Renewable electricity: Targets to actively source renewable electricity at rate consistent with 1.5˚ C scenarios an acceptable alternative to scope 2 emission reduction targets



Science-based target setting criteria

Scope 3

16. Screening: Suggest completion of scope 3 screening for all relevant and mandatory scope 3 categories to determine significance.
17. Requirement to have a scope 3 target: Depends on sector and ambition.
18. Boundary: Set one or more emission reduction targets and/or supplier or customer engagement targets in line with Standard.

Science-based target setting criteria

Reporting

19. Frequency: Publicly report company-wide GHG emissions inventory and progress against published targets on an annual basis.

Science-based target setting criteria

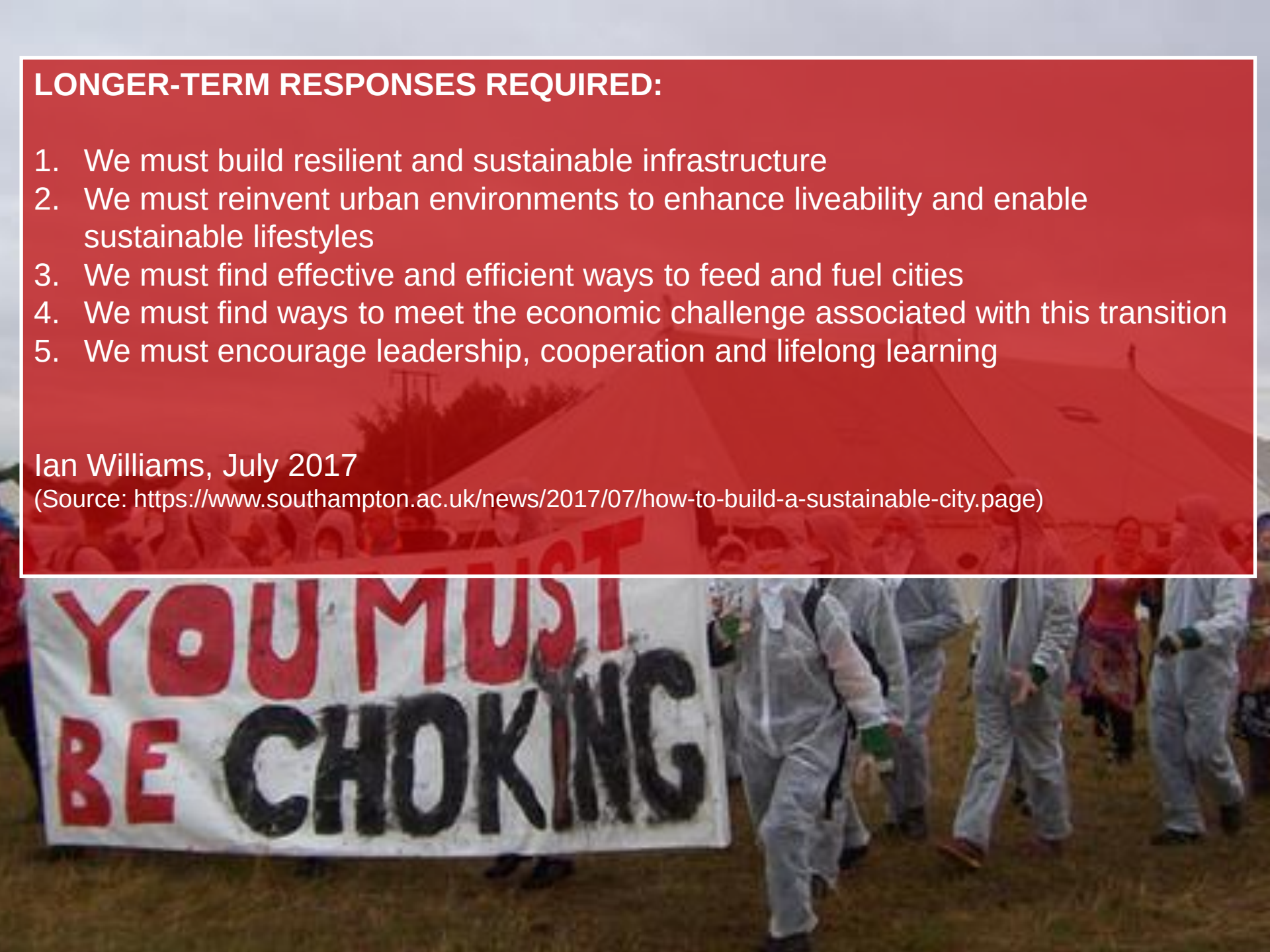
Recalculation and validity

20. Target recalculation: Targets to be reviewed, and if necessary, recalculated and revalidated, at a minimum every 5 years.
21. Target validity: Announce target publicly (website).

LONGER-TERM RESPONSES REQUIRED:

1. We must build resilient and sustainable infrastructure
2. We must reinvent urban environments to enhance liveability and enable sustainable lifestyles
3. We must find effective and efficient ways to feed and fuel cities
4. We must find ways to meet the economic challenge associated with this transition
5. We must encourage leadership, cooperation and lifelong learning

Ian Williams, July 2017
(Source: https://www.southampton.ac.uk/news/2017/07/how-to-build-a-sustainable-city.page)



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Be scientifically realistic.
Demand the politically impossible.
George Monbiot, October 2019

Practical Climate Change
Target Setting for your Business

Let’s predict the future

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I have calculated my carbon footprint, what happens next?

- Offset your footprint and then:

Do Nothing

Actively reduce

I have calculated my carbon footprint, what happens next?

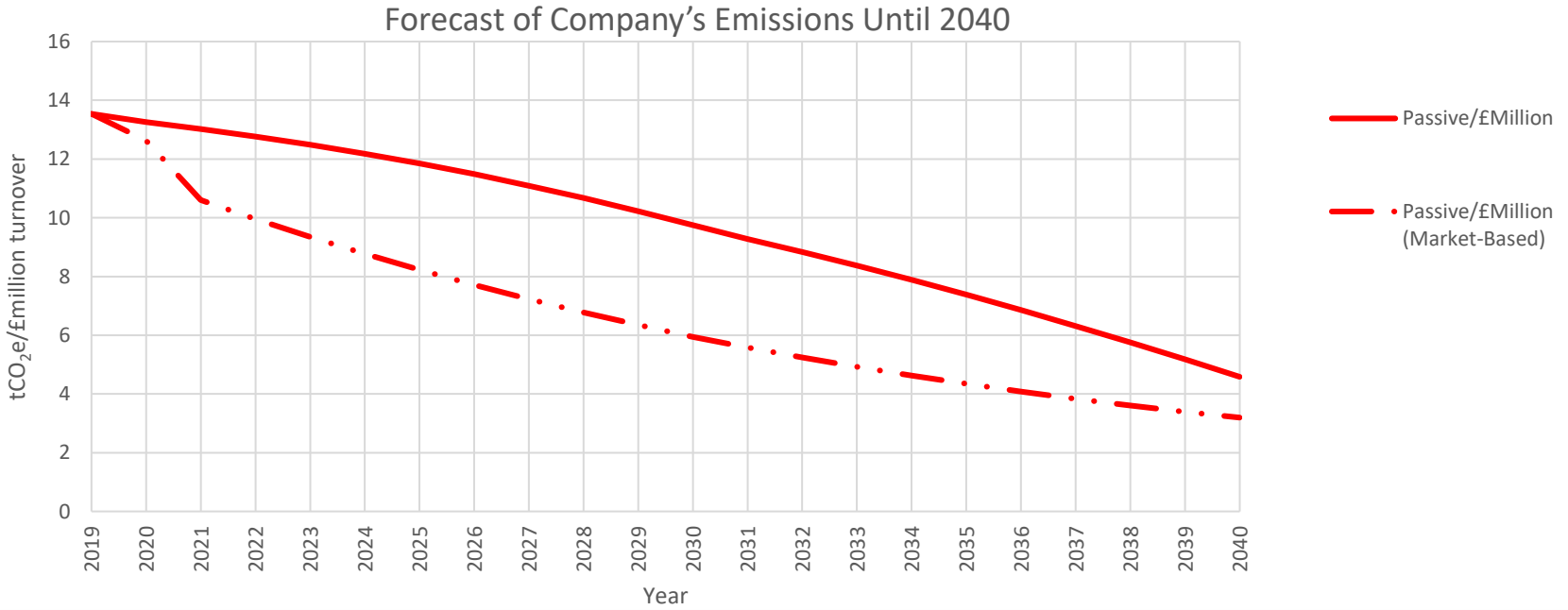
- Let's use an anonymous company to make some scenarios

(Using per £million turnover to account for company growth)

Element	2019 (tCO_2e per £million)
Cash opt out car travel	6.40
Van travel and distribution	2.69
Company car travel	2.01
Site electricity	1.48
Refrigerants	0.51
Rail travel	0.21
Flights	0.19
Hire cars	0.05
Taxi travel	<0.01
Total	**13.54**

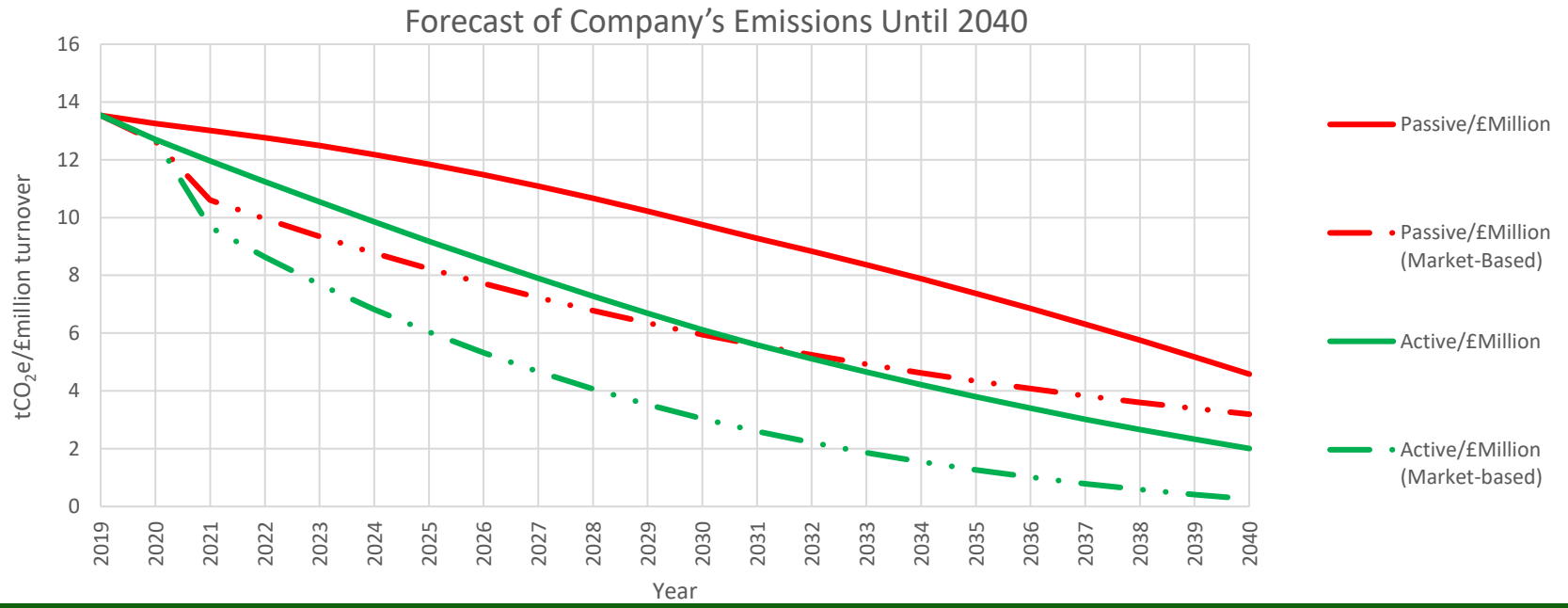
What if I do nothing? (except change my electricity tariff in 2021)

- Passive reductions account for:
  - Forecasted emissions factors based on current trends
  - Legislation for fuel burning vehicles
  - Government targets for grid decarbonisation
  - Switching to a green tariff



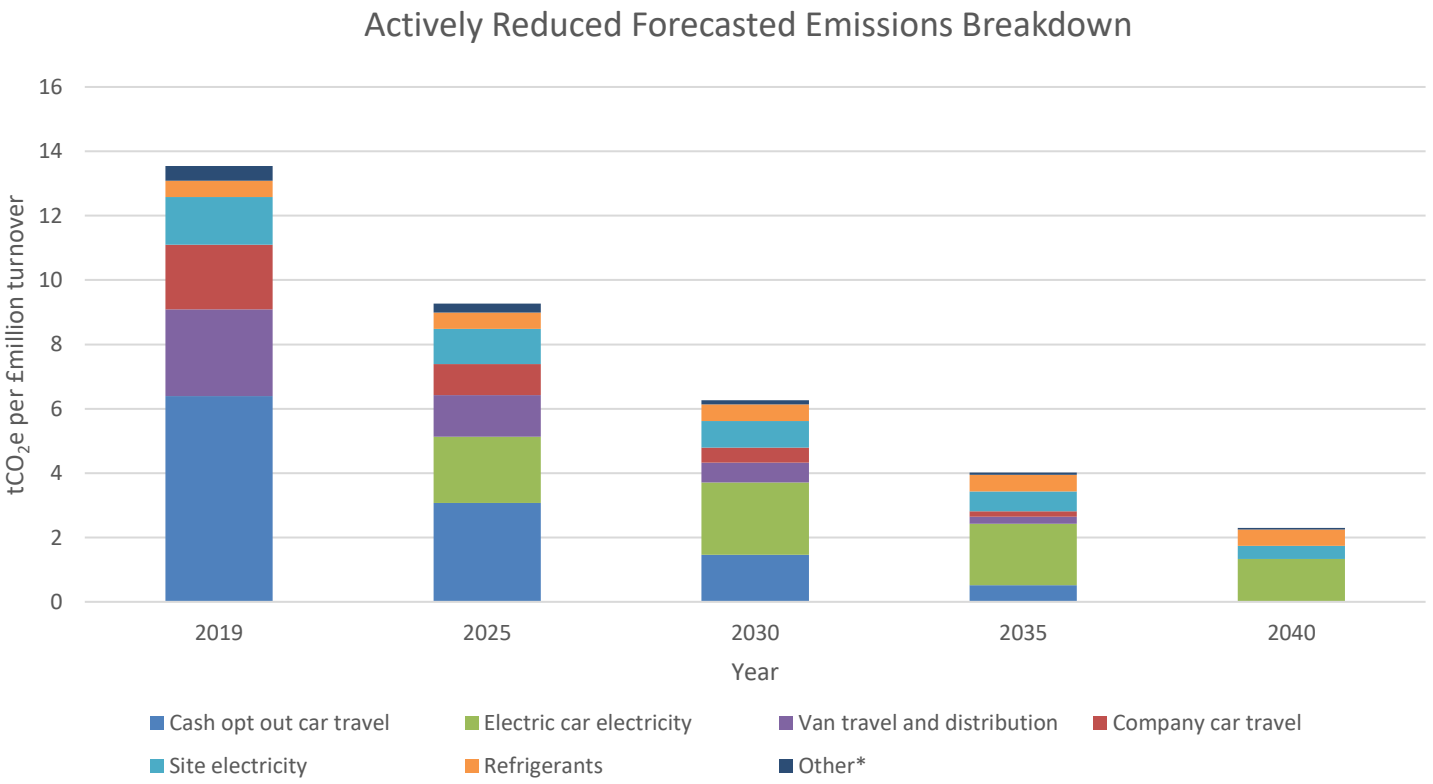
…but if I actively reduce my emissions?

- Some example methods of reduction:
  - Holding site energy audits to look for savings
  - Switching to electric vehicles faster
  - Changing flights to economy class
  - Reducing energy use/distance travelled by small amounts each year



…and how will this be broken down?

Fuel emissions → Electricity Emissions → Decarbonisation



*Other includes emissions from rail, flights, hire cars and taxi travel

Review your Targets on Yearly basis

- Chart your progress to your targets against your annual Carbon Footprint Assessment
- Adjust your targets – too fast/too slow etc
- Remember to promote/communicate with your teams to celebrate success and foster the right behaviours going forward

What about Science Based Targets (SBTs)?

- SBTs are **high level** goals

Pros	Cons
Provides a top down approach to emissions targets	Limited breakdown of future emissions
Aims to keep global warming below 2°C from pre-industrial levels	Doesn't account for passive reductions
Widely recognised, improves marketability	Less insight into what you need to do to reduce

To conclude

- Set goals tailored to your business's footprint
- Find out where cost effective emissions savings can be made
- Actively reduce by taking advantage of passive reductions
- Review your footprint and targets annually
- Get ahead of the legislation

Information & Further Resources

- Carbon Footprint Website: https://www.carbonfootprint.com/sciencebasedtargets.html
- Emissions factors and predictions based on Defra 2016 to 2020: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020
- Graphs and data belong to Carbon Footprint Ltd

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PORTALS

Do the Right Thing

Portals Climate Change Goals

portalspaper.com

January 2021

PUBLIC

Agenda

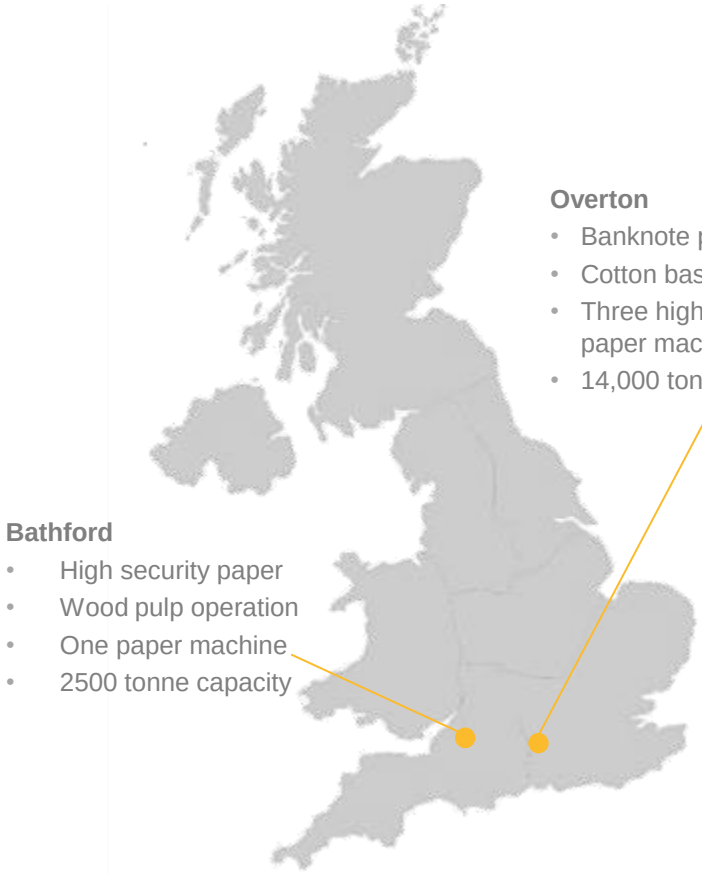
We’re very pleased to present to you today an update on October 2019’s case study on our Climate Change Goals. We’ll be discussing

- Our energy needs as a papermaker
- Our goals and the role of KPIs in achieving them

PORTALS

Our locations

Proud to be an independent paper business, entirely dedicated to supplying the highest quality paper and service to the world’s leading security printers



Overton

- Banknote paper
- Cotton based operation
- Three highly flexible paper machines
- 14,000 tonne cap

Bathford

- High security paper
- Wood pulp operation
- One paper machine
- 2500 tonne capacity

PORTALS

Using best practices and industry standards and accredited by the banknote ethics initiative

- ISO 9001 (Quality)
- ISO 14001 (Environment)
- ISO 45001 (Health & Safety)
- Intergraf CWA 15374 (Security)
- PEFC Chain of Custody (Forestry Sustainability)

Our goals

Portals Climate Change Goals

1. Track and act on any opportunity to change to green gas and alternatives to grid electrical imports,
2. Have a programme to drive short and long term improvements in Energy Efficiency,
3. Give purchasing preference to energy efficient equipment (pumps, motors, agitators etc),
4. Have a programme of replacement of inefficient equipment,
5. Sustain our Climate Change Adaptation plans.

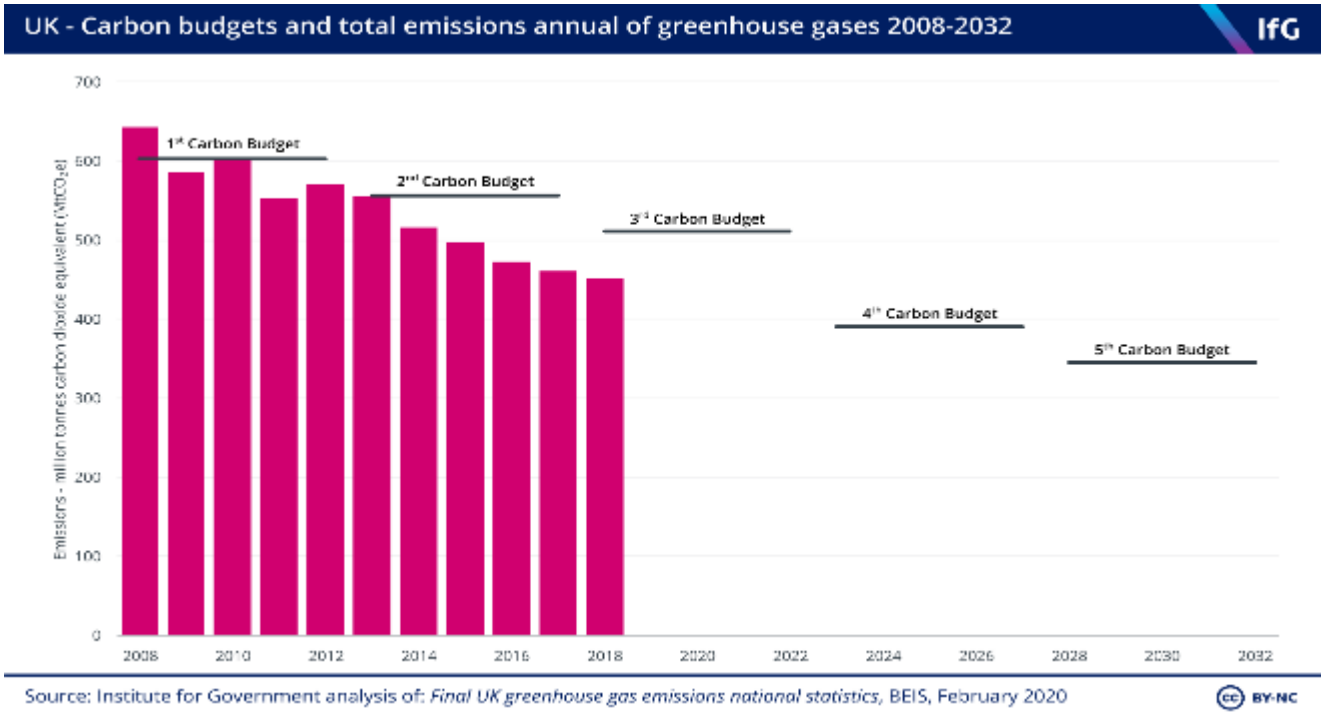
PORTALS

Looking for the Climate Change HEROES!

- Imperative that globally we cap carbon dioxide emissions to cap the average temperature increase to 1.5'C HOWEVER
- How do we know that the goals we set will have a material influence?
- Can we in any way influence others not to undo the good work we are doing?
- Should the UK and other countries regulate *for* carbon emissions so that the emissions don't go unregulated elsewhere?

- We need heroes and we need innovators.

PORTALS


UK - Carbon budgets and total emissions annual of greenhouse gases 2008-2032
IfG
Emissions - million tonnes carbon dioxide equivalent (MtCO2e)
700
600
500
400
300
200
100
0
1st Carbon Budget
2nd Carbon Budget
3rd Carbon Budget
4th Carbon Budget
5th Carbon Budget
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
Source: Institute for Government analysis of: Final UK greenhouse gas emissions national statistics, BEIS, February 2020
BY-NC

Committee of Climate Change estimate –
£50bn per year, less than 1% of projected GDP.

Treasury and BEIS estimate –
£70bn per year, or over £1 trillion by 2050.
Proper cost assessment by Treasury underway - reports next year.

Success in decarbonising the electricity sector - but at a huge cost.

For UK based industry - what substitutes for gas - are any economic in the UK?

All alternatives are currently more expensive or not technically feasible at present.

- Electrification;
- On-site renewables;
- Low carbon gas/Hydrogen;
- Biomass;
- Capture & Storage;
- Industrial Clustering

Industrial Energy Transformation Fund (IETF)

- To support businesses with high energy use to transition to a low carbon future and to cut their bills through increased energy efficiency.
- £315m re-directed from the Enhanced Capital Allowance Scheme.
- £30m initial funding round now open now closed – results next year. (Scotland to follow).
- No support for gas-CHP or biomass conversion.
- New funding rounds Spring & Summer 2021.
- Planning to target close to market equipment.

Decarbonising Industrial Clusters

- Ongoing consultation to identify the priority area
  - South Wales & Scotland only potential area with paper mills
  - £20m for Industrial Decarbonisation Centre at Heriot-Watt
  - Seen as a key opportunity

- #RacetoZero
- Count Us In campaign #TogetherForOurPlanet
- Partner with cabinet office

PORTALS

carbon footprint

Sustainable Business Network

Basingstoke and Deane

Hart DISTRICT COUNCIL

RUSHMOOR BOROUGH COUNCIL

Climate Change Target Setting

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