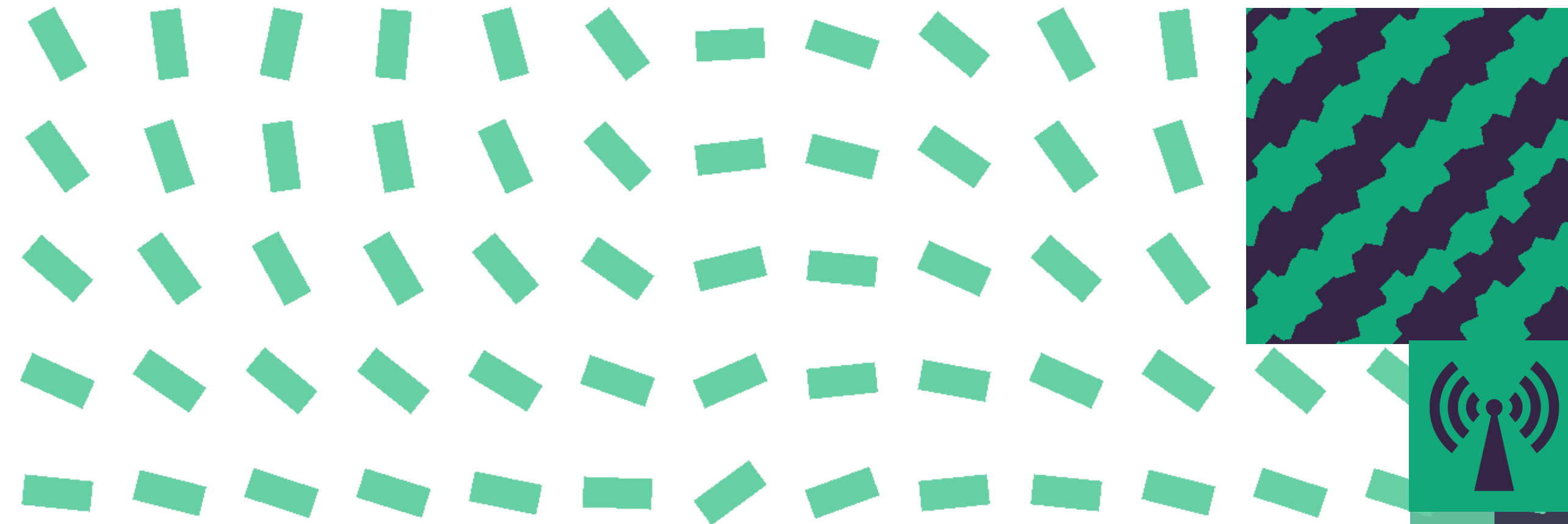




DUTCH GUILD

# Sustainability , Media and Technology



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# My Top 3 Questions





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## 3 questions I get asked the most

1. *“What’s the carbon footprint of cloud computing? Are we just outsourcing the problem?”*
2. *“How much worse is video streaming than broadcast? ”*
3. *“Is it better to replace [...] with a more energy efficient model or keep it going until it stops working?”*

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# Environmental Impacts of Media industry





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## Key environmental impacts

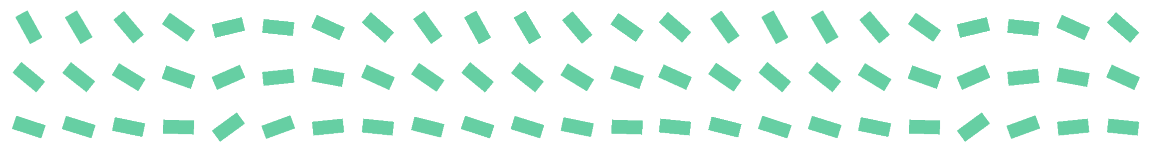
- Energy use
- Greenhouse gas emissions (carbon)
- Electronic waste
- Materials use
- Materials toxicity



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## Scale of our impact

- Estimates vary according to scope, boundaries, data sources and assumptions
- For 2015, from Malmudin and Lunden's 2018 paper:
- **Media industry: Around 2.8 % of global energy use and 1.2% of the global carbon footprint**
- **ICT industry : 3.6% of global energy use and 1.4% of global carbon footprint**
- Future forecasts vary wildly from huge increases to plateauing
- Can't be complacent



## Key concepts



- Lifecycle thinking
- Thinking systemically
- Sustainable design – design for sustainability from the outset, it's not an afterthought
- Sustainable innovation

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# Is video streaming worse than broadcast? ”







## 'Completely unsustainable': How streaming and other data demands take a toll on the environment

# Why climate change activists are coming for your binge watch

By [Hannah Sparks](#)

October 28, 2019 | 7:45pm

The real problem with your Netflix addiction? The carbon emissions

*Arwa Mahdawi*

How cat videos could cause a 'climate change nightmare'



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## Assessing energy use of BBC TV services

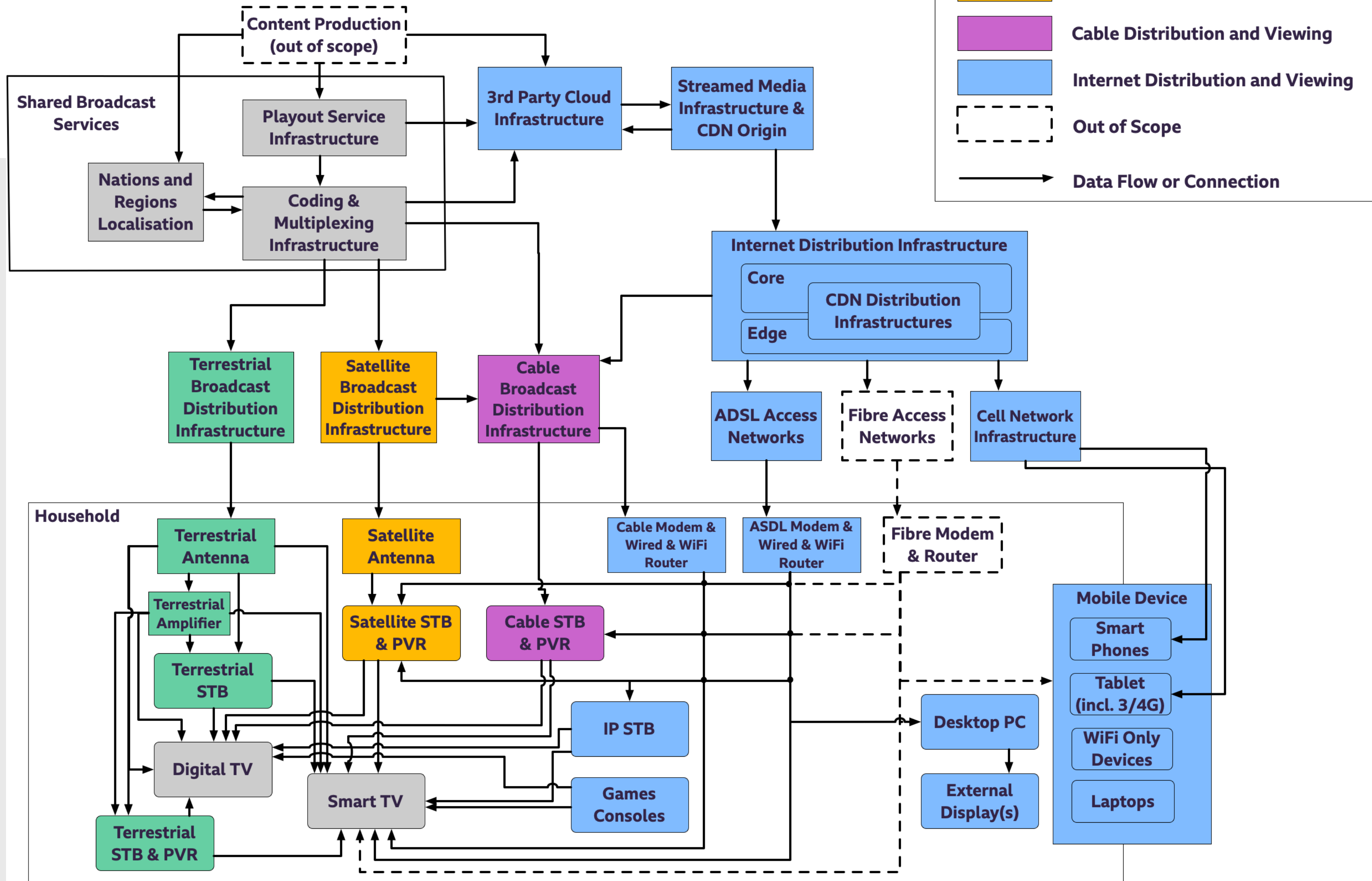
- What is the environmental impact of streaming video over the internet?
- How does this compare with traditional broadcast platforms, such as satellite, terrestrial and cable?
- Which parts of the broadcast chain (from transmission to the home) uses the most energy?



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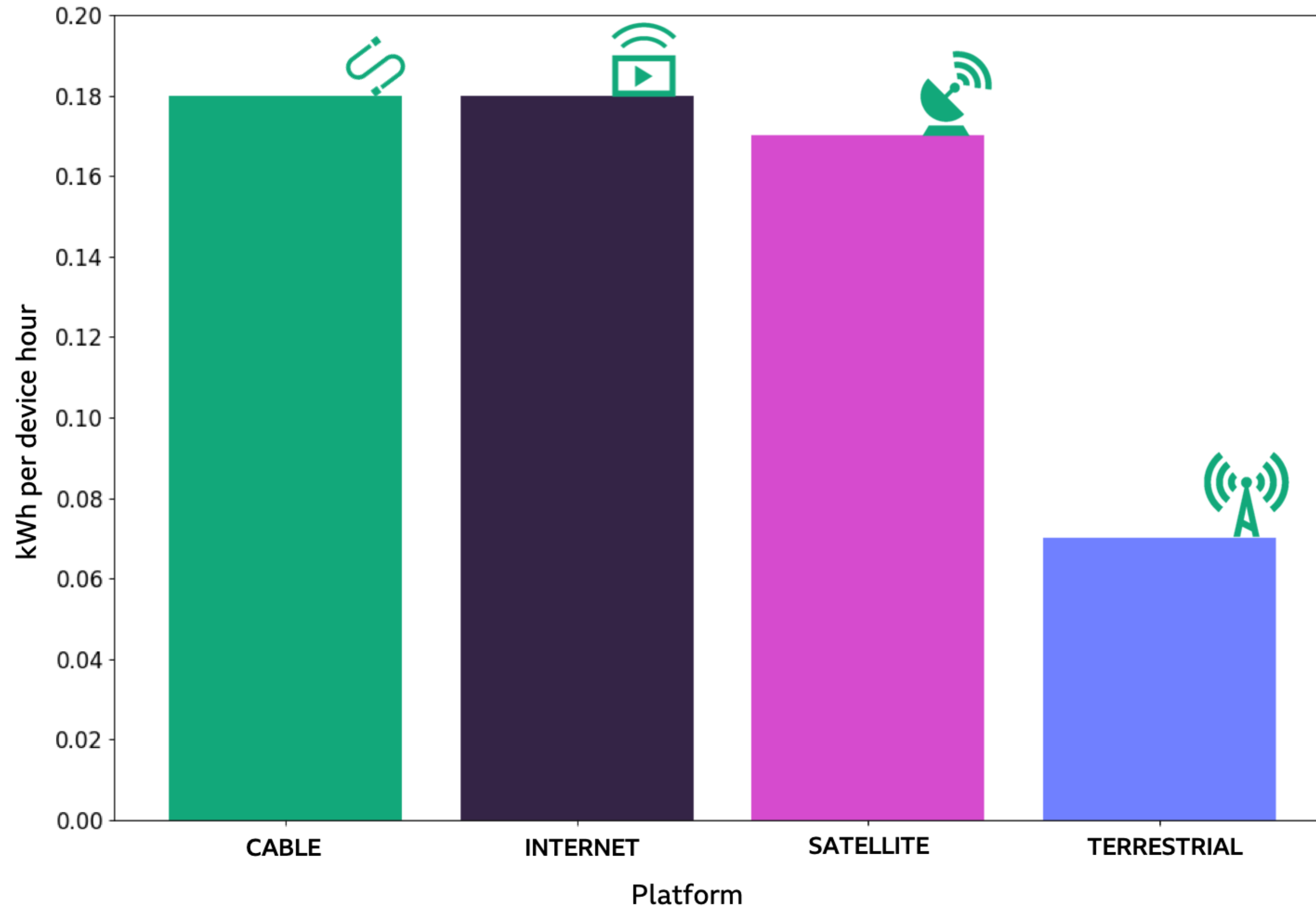
## Assessing energy use of BBC TV services

- Worked with digital footprinting experts at University of Bristol
- Used Standard methodology called Lifecycle assessment
- Not a BBC footprint, a footprint of BBC TV services so includes the whole chain
- We focused on energy in the use (not manufacture of equipment)
- Built a mathematical model to simulate the system.
- Includes all the different distribution platforms and consumer devices used to access BBC TV services.
- Used audience viewing data for time of use and power consumption data to give us energy use for each component.

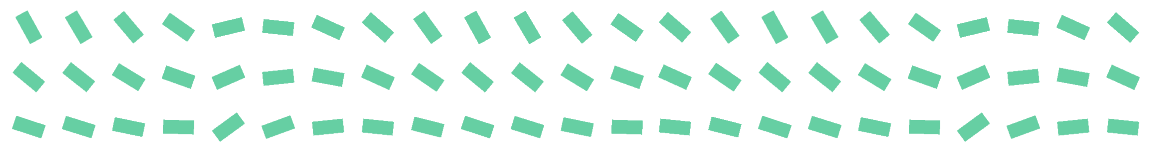




Mean energy use for one device-hour of BBC content over different distribution platforms







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## TV Results for 2016

- DTT uses the lowest energy per device-hour. Less than half the other platforms.
- Other platforms are comparable with each other in energy use, although where hotspots are differs
- For terrestrial, receiver are built in or the STBs are relatively energy efficient, so the highest energy using component for DTT is the TV set
- Pay-TV STBs / PVRs continue to draw a lot of power in standby.
- iPlayer energy is dominated by the home router. Screens smaller than for other platforms as in 2016, they were mainly phones/ tablets /laptops
- So consumer devices are the key hotspots. Especially those that are on all the time or do not significantly reduce their power consumption in standby.



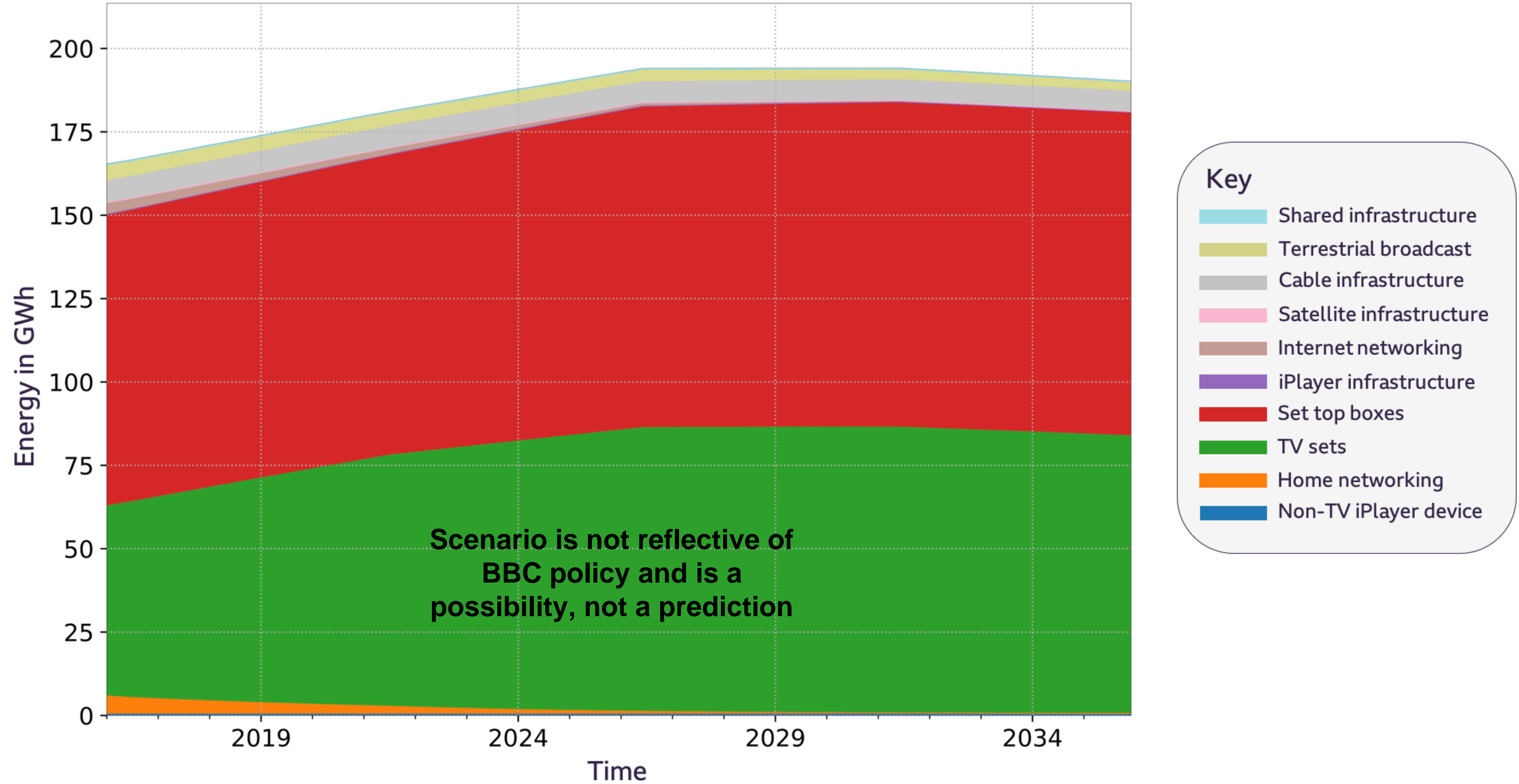
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## Future impacts and scenario modelling

- If more viewing shifts to IP away from broadcast, how does that change the impact?
- Does the energy intensity of the Internet continue to fall?
- If number of households increases, do we expect an increase in the number of TVs?
- Do people continue to buy bigger TVs?
- How do changes in viewing hours, energy efficiency of devices or our choice of distribution platforms affect the energy use.
- Modelled a range of scenarios, see the interactive demo on our website



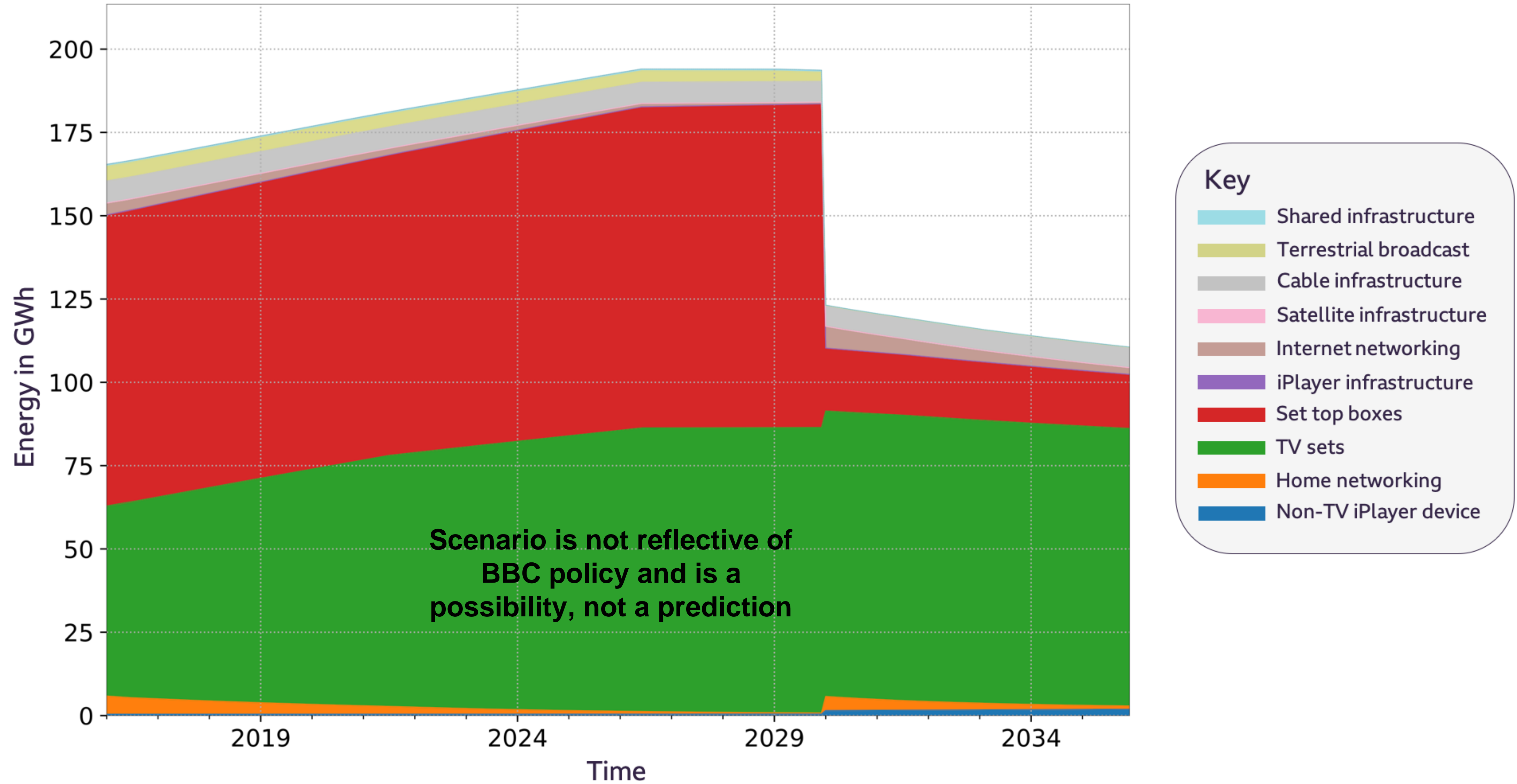
### Total monthly energy consumption

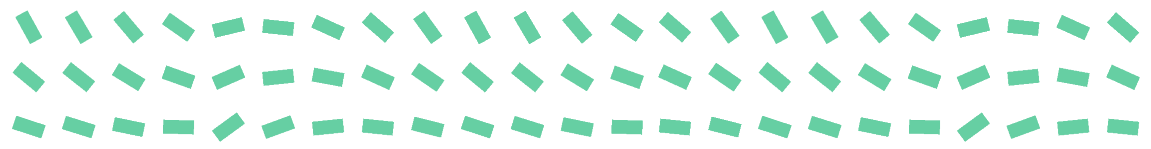






Total monthly energy consumption





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## More detail on our website

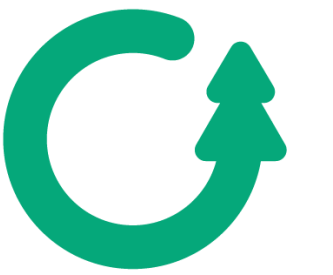
- See [bbc.co.uk/rd](https://bbc.co.uk/rd)
- Energy use of BBC TV services: [www.bbc.co.uk/rd/blog/2020-09-sustainability-video-energy-streaming-broadcast](https://www.bbc.co.uk/rd/blog/2020-09-sustainability-video-energy-streaming-broadcast)
- With link to our White Paper and an Interactive demo looking at future scenarios
- Energy use of BBC Radio services
- [www.bbc.co.uk/rd/blog/2020-10-sustainability-radio-audio-energy-streaming-broadcast](https://www.bbc.co.uk/rd/blog/2020-10-sustainability-radio-audio-energy-streaming-broadcast)

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**“Is it better to replace [...] with a more energy efficient model or keep it going until it stops working?”**



## Some practical considerations



- Can manufacturers share information on the embodied carbon?
- Provide information on actual power consumption and variation with load, not just rated power
- Design equipment to be turned off safely or drop into very low power standby, and retain state
- Consider need for networked standby mode

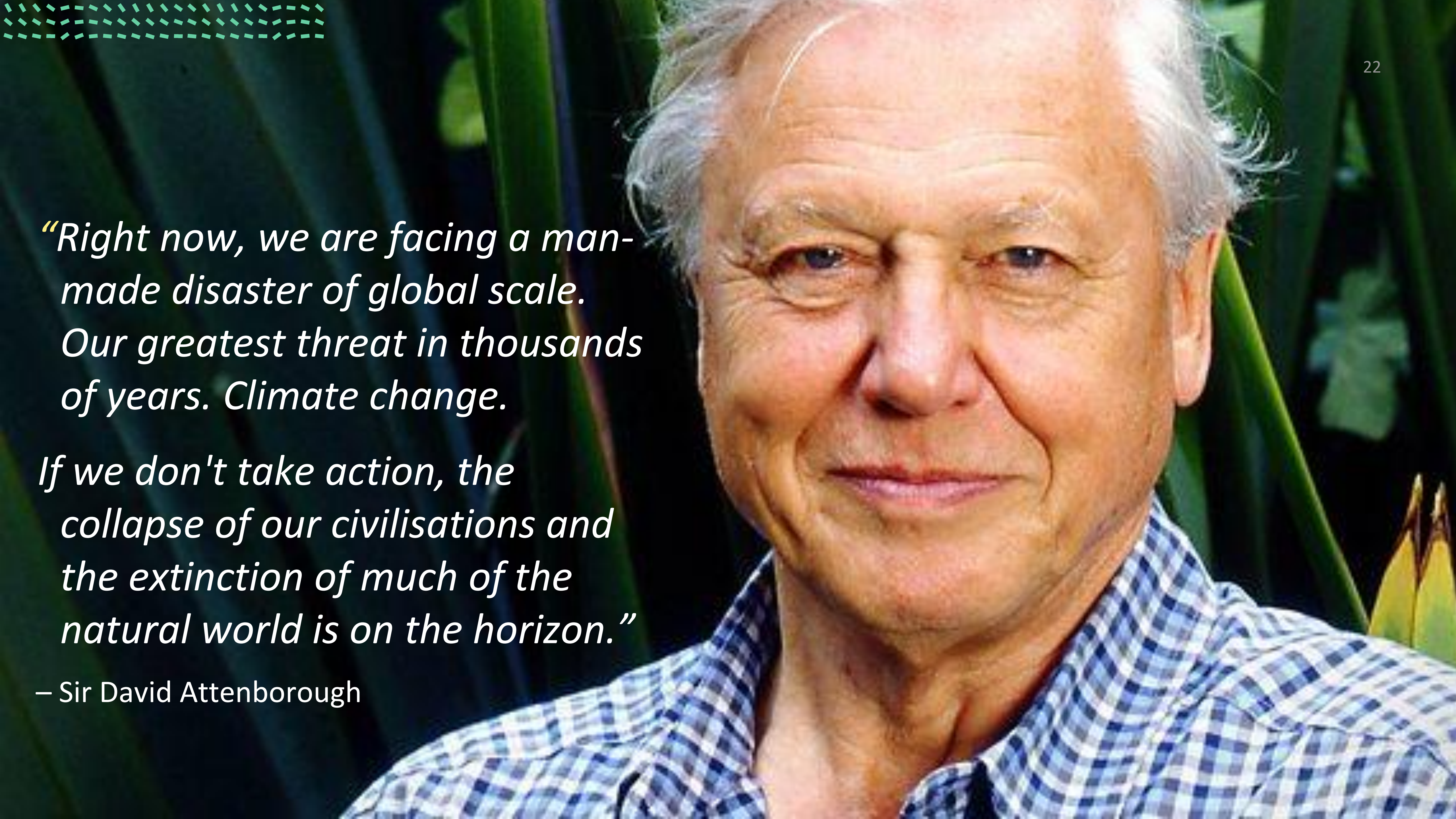


## Key concepts



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- Sustainable design – design for sustainability from the outset, it's not an afterthought
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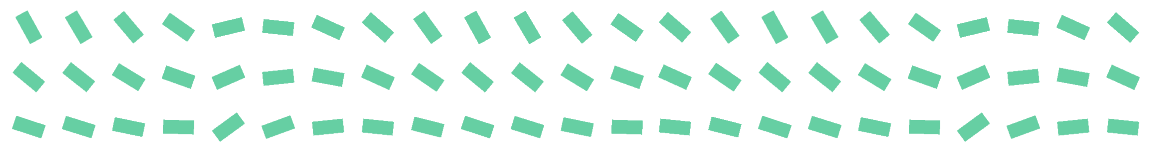


*“Right now, we are facing a man-made disaster of global scale. Our greatest threat in thousands of years. Climate change.*

*If we don't take action, the collapse of our civilisations and the extinction of much of the natural world is on the horizon.”*

– Sir David Attenborough





# Thank you

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