

Sustainability and Technology at ITV

EBU Round Table, Sept 2020



Tim Guilder, Tech Manager - ITV Daytime



We create **more than TV.**

Every day we entertain millions, *(in fact, 40 million viewers a week!)*, grow brands and shape culture.

itv

The UK's largest
commercial broadcaster

We make, sell and
distribute content

Operate 6 Free to air
broadcast channels

Direct to consumer
services including - The
ITV Hub

itv

itv

itv2

itvBe.

itv3

itv4

Comedy Central
itv

Having a clear strategy ourselvesand....



The biggest shows with the smallest footprint



NET ZERO CARBON EMISSIONS BY 2030

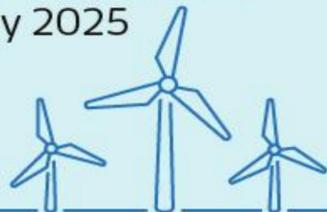
Reduce emissions we control by **46.2%** by 2030



Reduce emissions we influence by **28%** by 2030



Power business with **100%** renewable energy by 2025



ZERO WASTE BY 2030



waste reused or recycled by 2025

Zero single-use plastics in operations, productions and supply chain by 2025



100% SUSTAINABLE SUPPLY CHAIN BY 2030

Support smaller suppliers to improve environmental impact by 2030



of highest environmental risk suppliers meet ITV's sustainability criteria by 2025

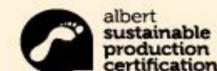


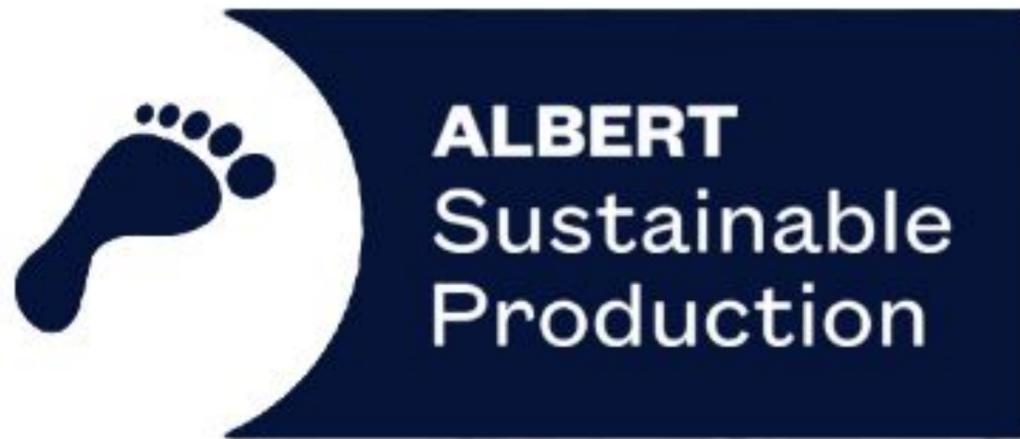
100% ENVIRONMENTALLY TRAINED AND CERTIFIED BY 2021

Climate crisis training for all staff



100% albert certification for ITV produced and commissioned productions by 2021





Beyond our own direct activity, we engage with the wider programme making community through the [Social Partnership Commissioning Commitments](#) to ensure understanding of our expectations and commitment to greener programming. We are also Directorate and Consortium members of [albert](#), and members of the [Responsible Media Forum](#).

92%

increase in programmes achieving albert certification

1,170

hours of programming albert certified

ITV has Albert Consortium membership and Production & Technical Teams undergo Albert Carbon Literacy training sessions

Energy Label Business Renewable: REGO Backed

100% Renewable Electricity

British Broadcasting Corporation

Supply Period: 01 April 2020 - 31 March 2021

	Electricity Source	CO ₂ /kWh emissions	Consumption
A	Renewable	0g	A
B	Low Carbon/CCS	<200g	
C	Gas CHP	<300g	
D	CCGT Gas	<400g	
E	UK Average/Gas	<600g	
F	Coal/Oil	<800g	
G	Coal	>800g	

British Broadcasting Corporation

has chosen to use the npower Business Renewable product for its supply of electricity. This meets the quality criteria of the GHG Protocol (2015) for reporting zero carbon emissions and has been independently assured by Carbon Clear.



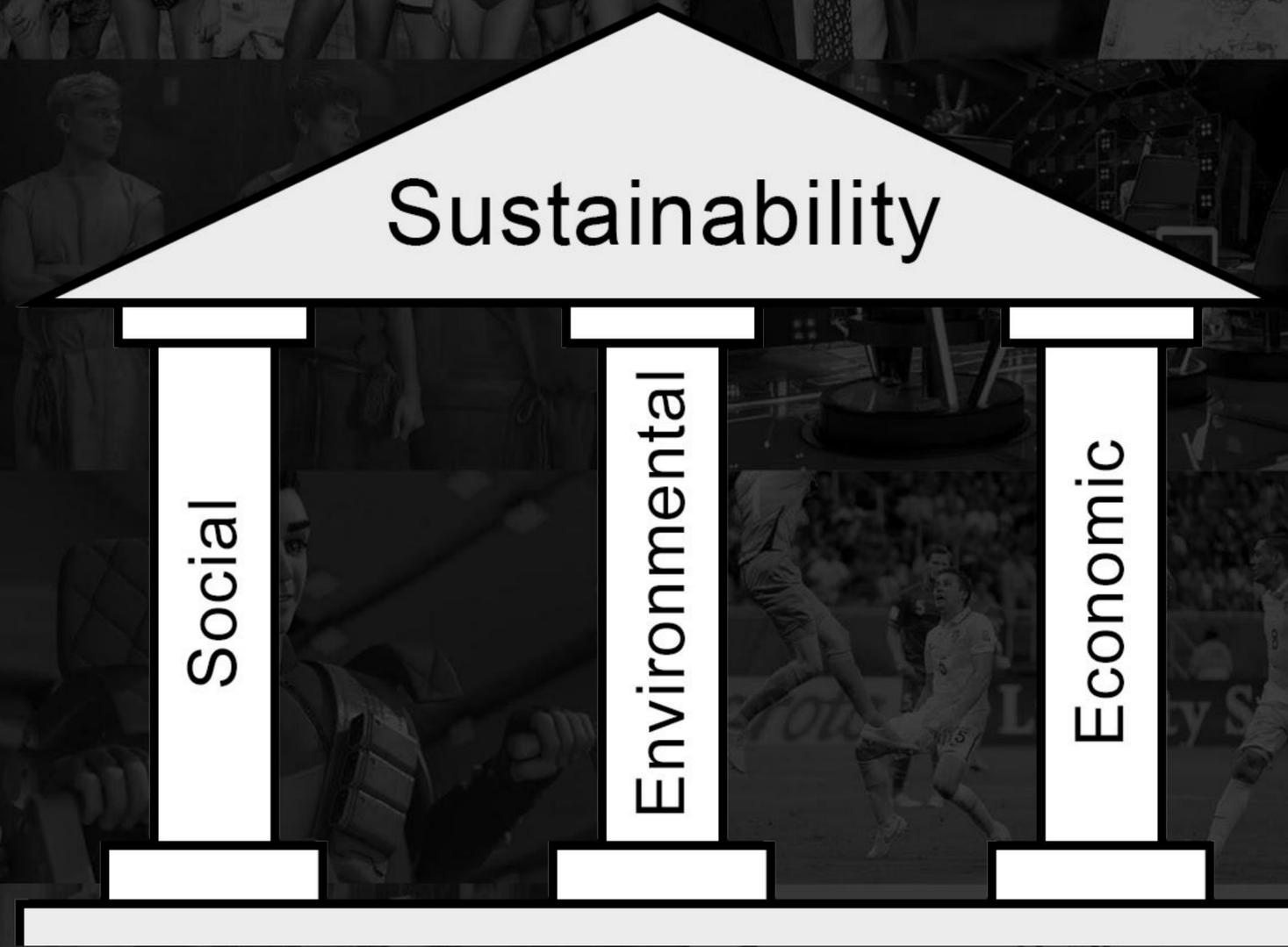
npower is a registered trademark and is the trading name of Npower Limited (Registered No. 3653277) Npower Northern Limited (Registered No. 3432100) Npower Commercial Gas Limited (Registered No. 3768856). Your npower supply company is named on your contract. Registered Office: Windmill Hill Business Park, Whitehill Way, Swindon SN5 6PB
npm14591/MM20534/07.17

.....as well as
selecting
suppliers with
a strong
Sustainability
Strategy.



	Electricity Source	CO ₂ /kWh emissions	Consumption
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How do we achieve this?:
We adopt the 3 pillar model -



and, very often, there is a healthy by-product in
financial savings!

We promote and feature **GREEN** initiatives on our shows and we use less Natural Resources (like Fuel for Transportation) to make them.



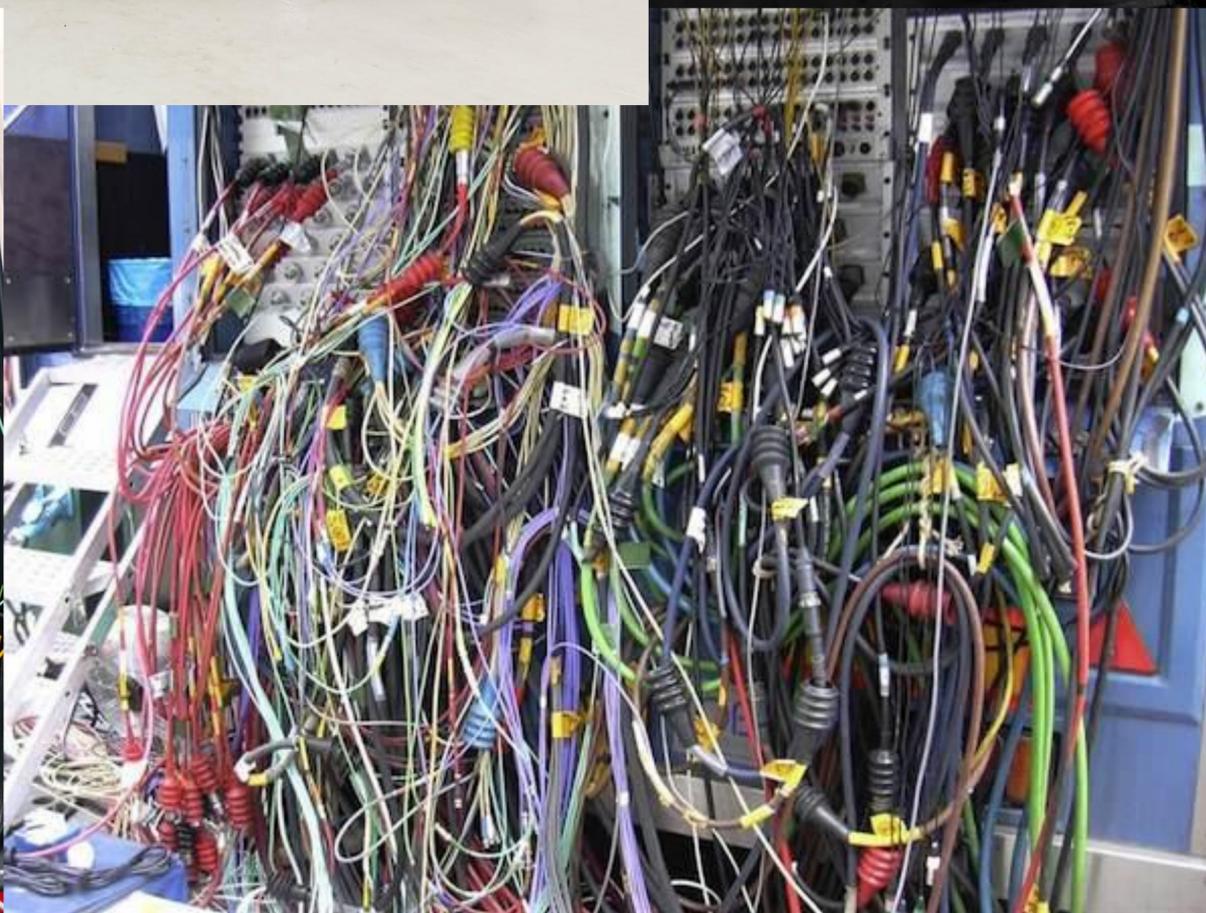
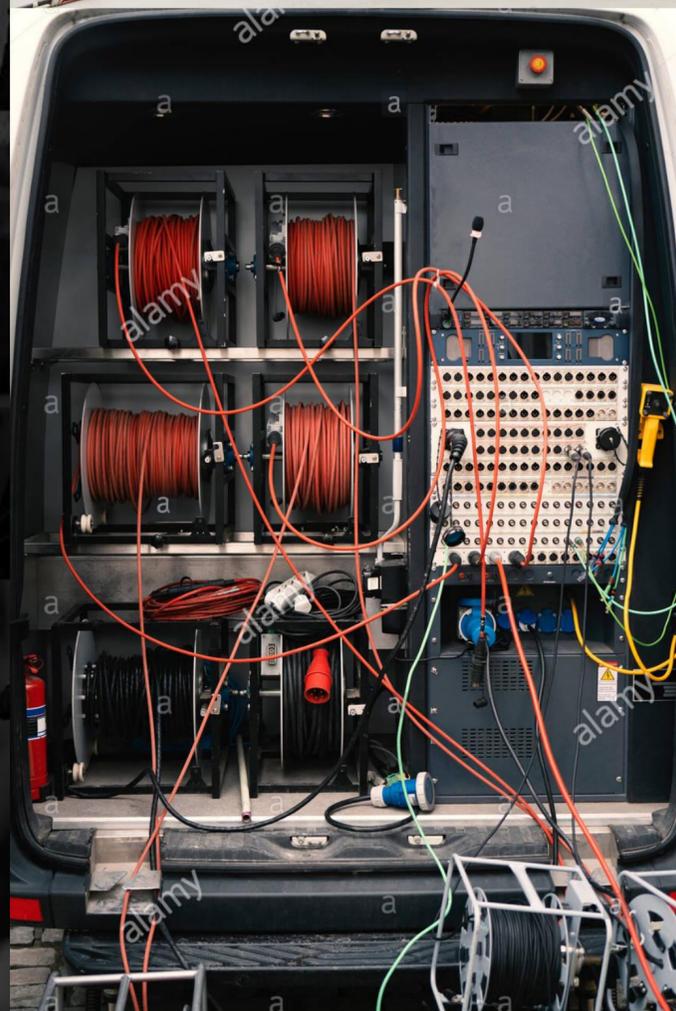
i.e - Smaller OB vehicles, Hybrid 'Sat Cars' and generally less travel *(even before Covid)*



**MERCEDES-BENZ
SPRINTER 3.5T VAN**

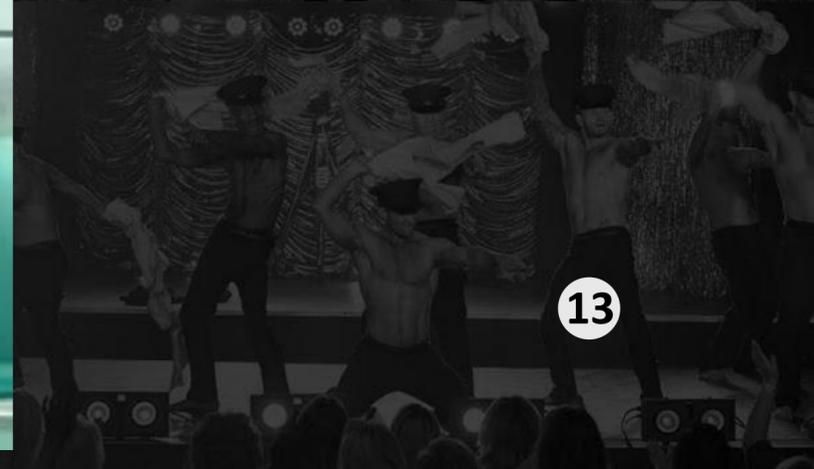

Estimated
Journey Cost
£10.47


Combined MPG
34.5



**Q) Do we need to
cart as much
'stuff' around? If
not, then do we
need *as* large a
vehicle?**







We use Sat Cars based on converted 'Mitsubishi Outlander PHEVs' (Plug-in Hybrid - Petrol + Electric Vehicles).

Mk2 in Q1 2021 will re-use components such as the KA dish and **itv add new features such as solar panels to charge kit batteries.**

Could it be a hybrid or even fully-electric vehicle instead?

(Particularly given that the Govt is looking to ban Petrol & Diesel Cars by 2035 (after experts said the original '2040' mission would be too late if the UK wants to achieve its target of emitting virtually zero carbon by 2050))



**MITSUBISHI
OUTLANDER 2.0
PHEV**



Estimated
Journey Cost
£2.31



Combined MPG
156

• Hiring locally-based kit and skills, e.g
Good Morning Britain found a LiveU Operator in
Mongolia via the LiveU Community.

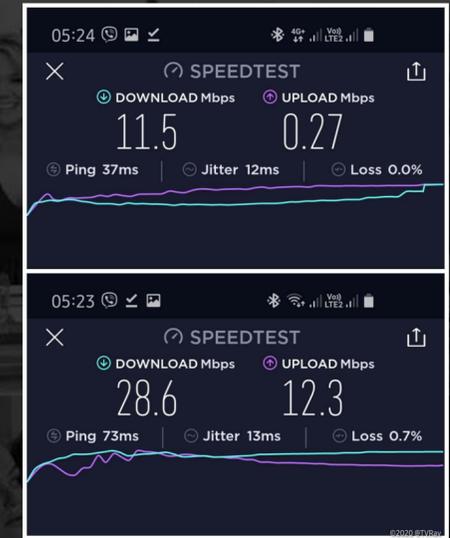
A screenshot of the LiveU Community website. The header includes the "LiveU Community" logo, a search bar, and navigation links like "ADD SERVICE OFFER", "HOME", "MY COMMUNITY", and "SUPPORT". Below the header, there are filters for "Find:" and "Show: All Headlines Members". The main content area displays a list of events with "ADD COVERAGE" buttons. The events listed are:

- Hajj**: Saudi Arabia hosts the annual hajj pilgrimage beginning Sunday, drawing ov... Mecca Saudi Arabia Aug 15, 2018
- 2018 Rugby Championship**: The 2018 Rugby Championship will be the seventh edition of the expanded ... Australia Aug 18, 2018
- Ireland Pope**: Catholic faithful gather with Pope Francis in Dublin for the ninth World Meet... Dublin Aug 21, 2018
- UN Assembly**: Annual UN Assembly United Nations, New York, État de New York, États-Unis Sep 24, 2018

On the right side, there is a map titled "All Available Services" showing various locations marked with pins. The footer includes the "FRANCE 24" logo and the text "See all 4 Headline Events".

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On an everyday basis, our News & Features crews increasingly travel light with LiveU kit with SNG Cameras and the LiveU Smart Phone app (just in case).



Pre-5G, one recent addition has been a 4G+ booster from Vodafone - an Emergency Mobile Unit or 'EMU' for short. designed to amplify 4G/4G+ connectivity when it is low via a High-gain Antenna. Speeds of up to 70 Mbps are possible, but we've used it in-conjunction with an HEVC LiveU, (we only need a solid 6-8 Mbps!)



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LED Lighting in all Studios

Both *Emmerdale* and *Coronation Street* have always been at the forefront of Sustainable production and low energy lighting plays a huge part in reducing the carbon footprint of Continuing Drama.

The LED lights offer an average **85%** reduction in power consumption compared to their Tungsten predecessors - but most of the savings come from the avoidance of heat generation, which in turn means that you don't then require the A/C to be whirring away 12 hours a day. So as you can imagine, there are also substantial savings to be had on your energy bills and it is better for our Planet!



'Heating and Venting'

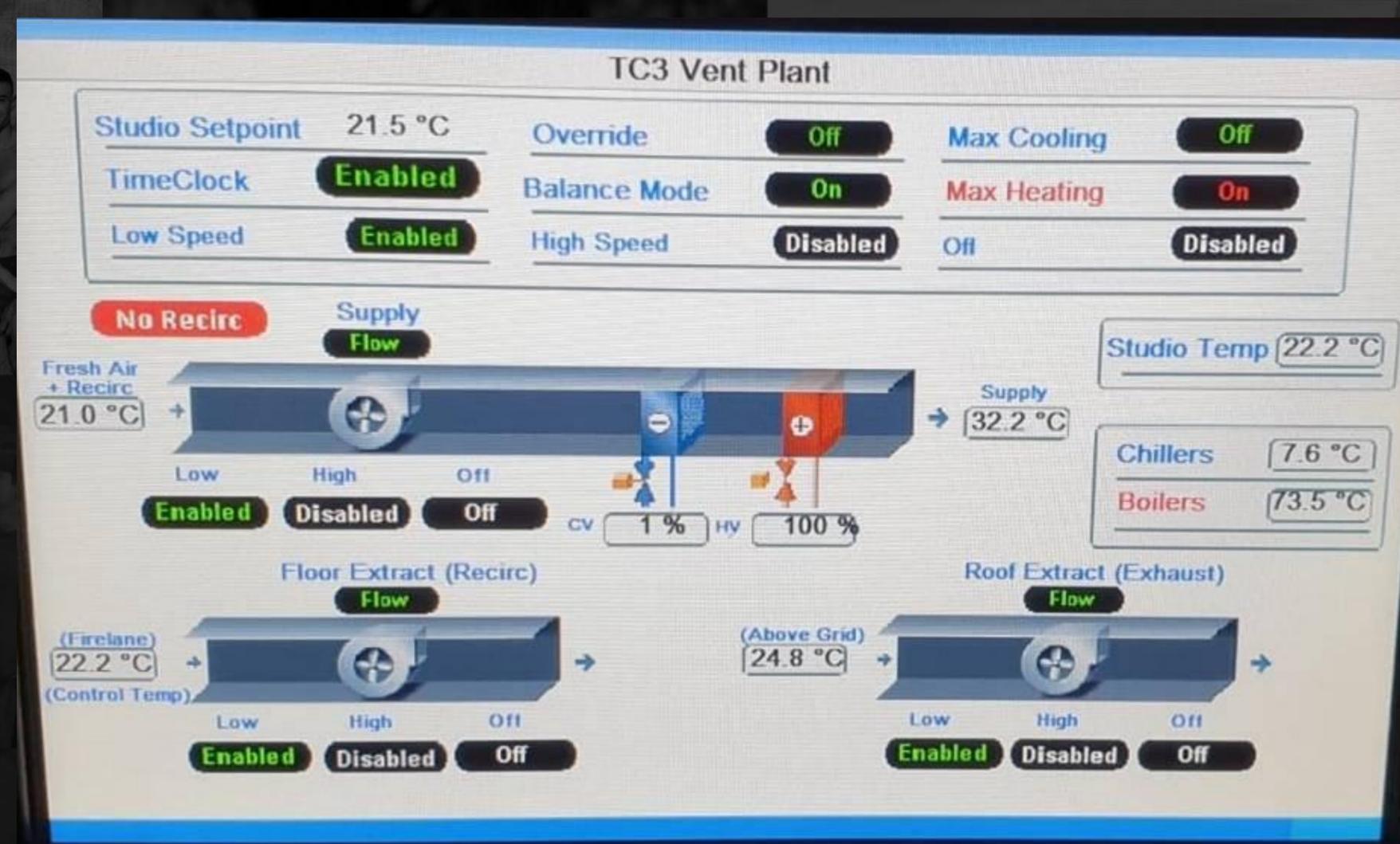
The ITV Daytime Studios @ Studioworks in West London, uses 'free' Heating OR Cooling to save energy (which is therefore good for the planet and our running costs).



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How? Using Recirculation

If it is **hot** outside, 50% of studio cool air is recirculated and mixed with 50% hot air from outside, reducing the **cooling** requirement (and electrical chiller energy used) by 50%.



If it is **cold** outside, 50% of studio warm air is recirculated and mixed with 50% cold air from outside, reducing the **heating** requirement (and gas boiler energy used) by 50%.

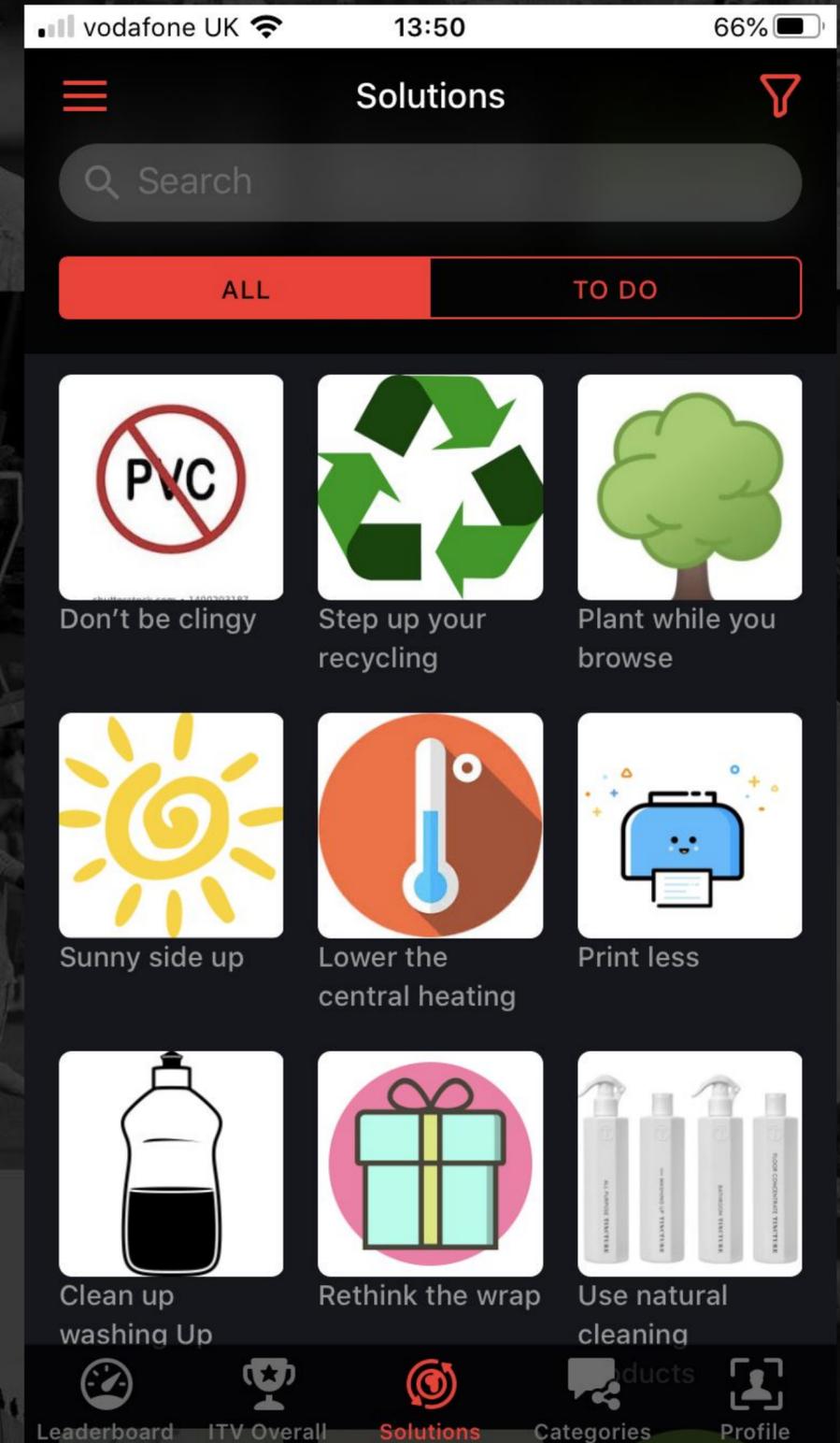
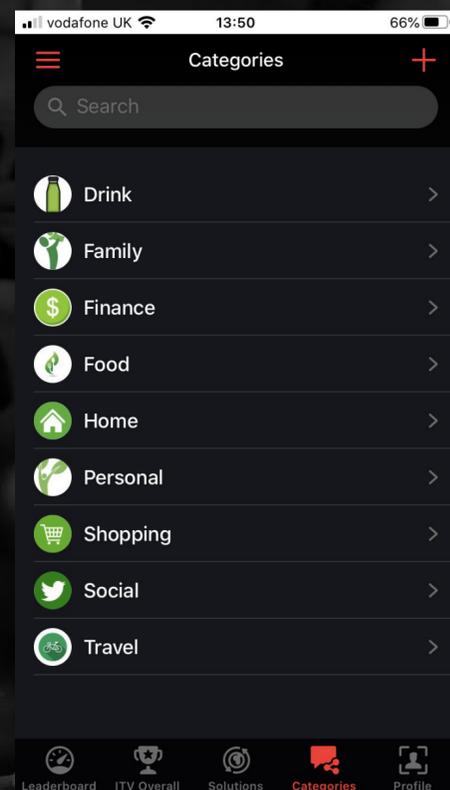
Virtual Sets



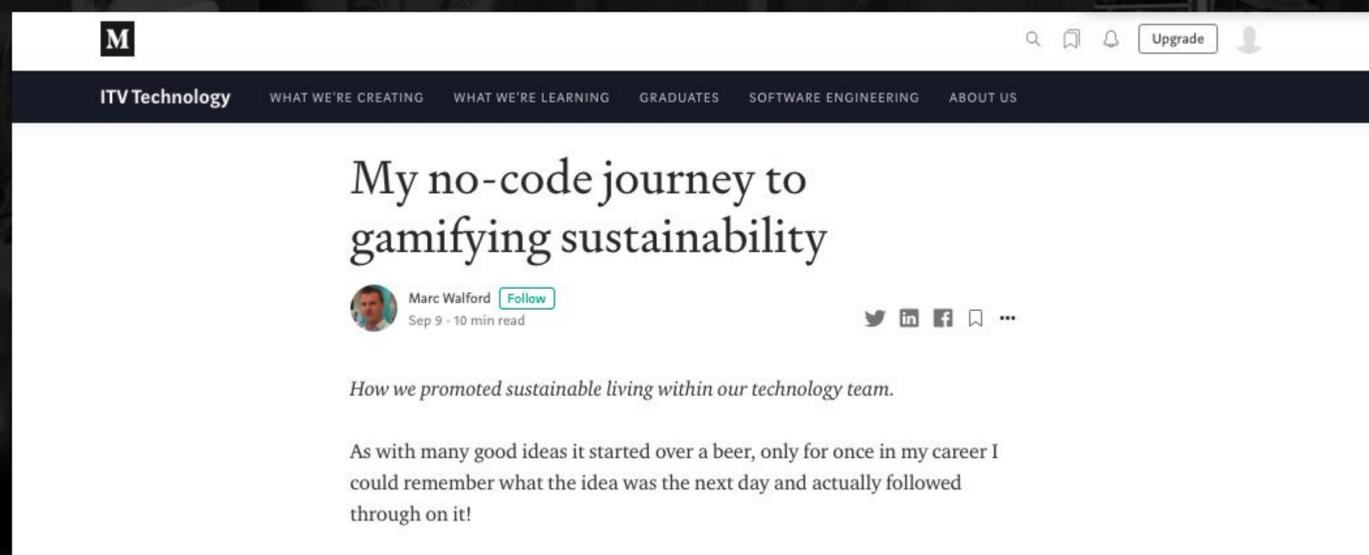
Collaborating with moov, we've created a VR Set for our shows using **itv** StarTracker & Unreal Engine - as there was little ambition to have another set/studio location sat on standby - saving on costs & materials.

The 'Gamification' of Sustainability

In order to promote sustainable living and create that culture of awareness (both in and out of work) one member of the ITV Group Tech team has built a platform for internal Depts to compete. Using no-code app called 'Glide', the app offers advice and tips, as well as the chance to compete to be the best Dept.



Naturally, the **Green Team** are currently in the lead, but the Technologists aren't far behind!



<https://medium.com/itv-technology/my-no-code-journey-to-gamifying-sustainability-cc783e810a78>



There's little more carbon-friendly than having an aerial on top of a hill. But....

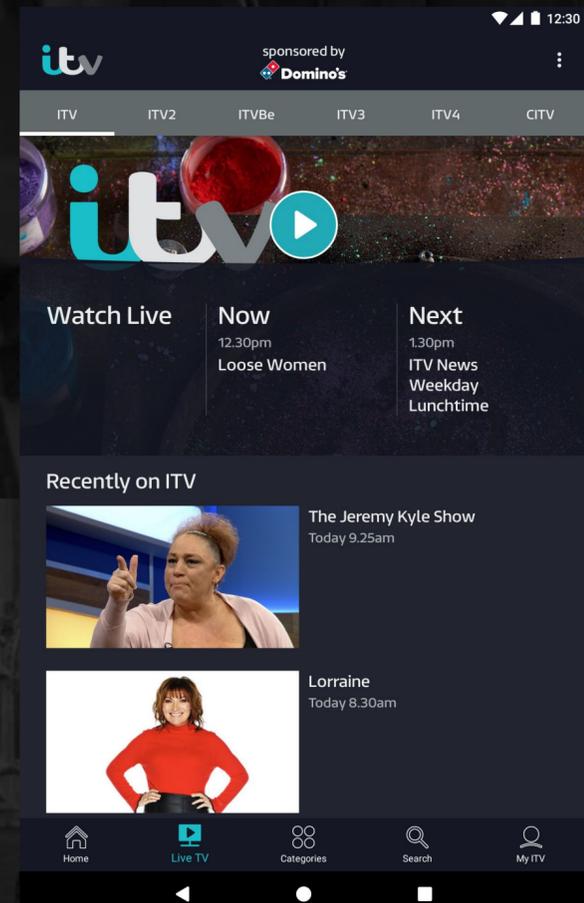


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...now, everyone wants to do this:



and this:



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Comparison of traditional vs IP distribution



Playout

SDI handover

Encode

DVB S/S2 Modulation

Uplink

Transponder capacity

Home STB

Playout

IP Handover

Live Encode

video platform

Cloud video network

Partner platforms

User devices

ITV CDN Distribution

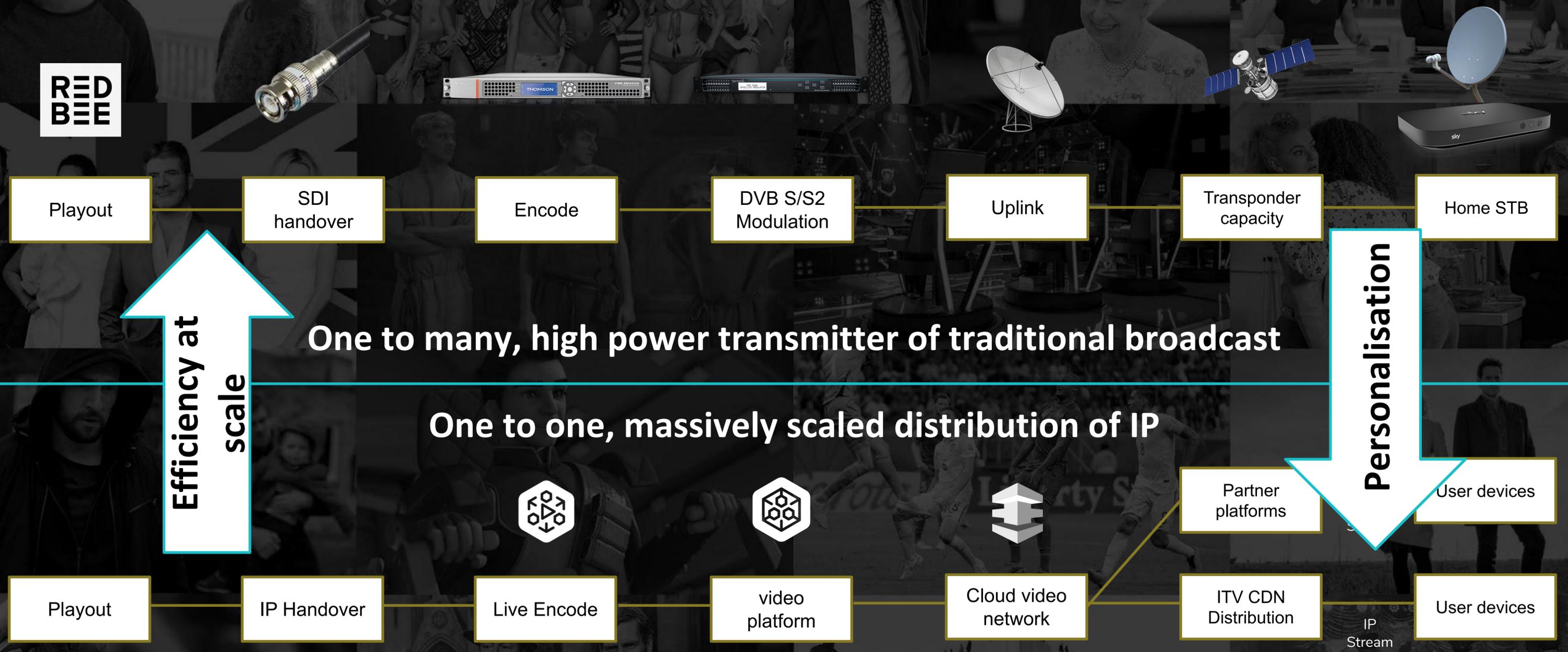
User devices

IP Stream

IP Stream



Comparison of traditional vs IP distribution



...so we need more of this:



...and, therefore, we'll need more of this:



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Having a clear strategy ourselvesand....



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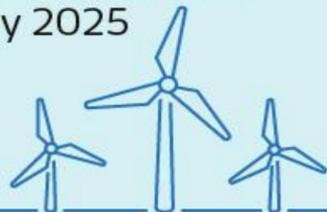
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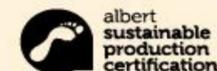


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The Challenge for Distribution



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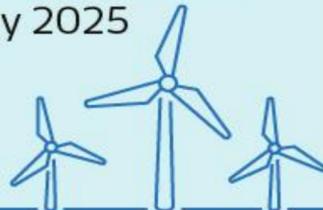
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Scope 1 and
Scope 2

Scope 3

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ITV STRATEGIC GOALS

- Accelerate the growth of ITV Hub
- Grow and deliver our addressable advertising capabilities
- Strengthening our data, analytics and digital capabilities
- Driving our SVOD services in the UK and internationally



The Challenge for Distribution



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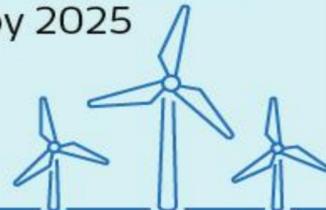
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Scope 1 and
Scope 2

Scope 3

itv

ITV STRATEGIC GOALS

- Accelerate the growth of ITV Hub

Growth in energy intensive functions and increase in audience reach whilst still reducing our carbon emissions.

- Strengthen our data, analytics and digital capabilities
- Driving our SVOD services in the UK and internationally



- Analysing how **GREEN** our processes are for the Distribution of Content and how that content is then consumed.



The Challenge for Distribution



BBC



dentsu
AEGIS
network



informa



itv



Pearson



RELX



Schibsted



sky



TalkTalk



carnstone
partners ltd



University of
BRISTOL



quiet science
web applications



DIMPACT
Insight to action on digital carbon impacts



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The Challenge for Distribution

Working together to create a mathematical model for digital distribution so that we can:

- map out 'hotspots' in our energy usage.
- measure progress against our targets / a baseline.
- understand the impact of changing consumer habits

DIMPACT

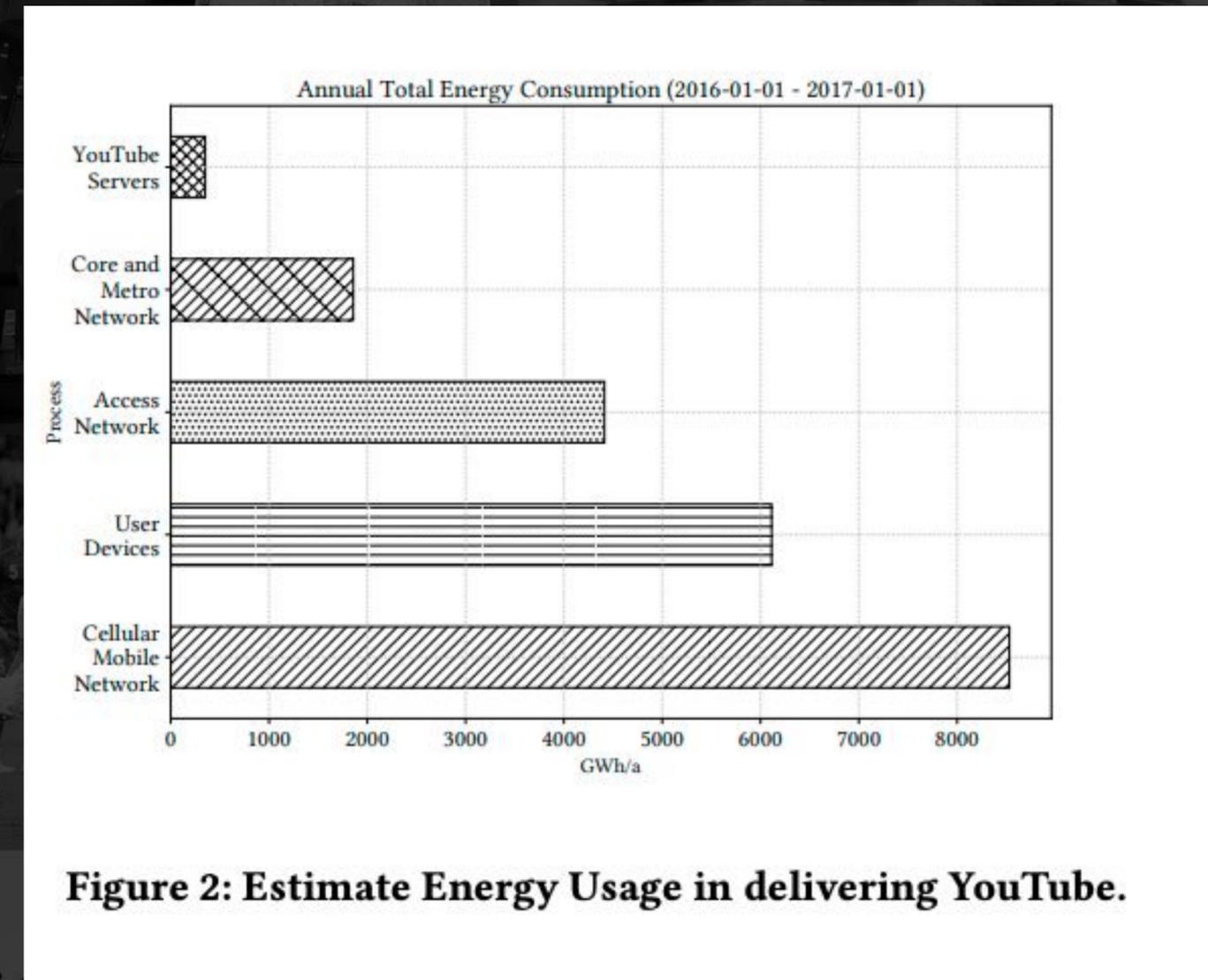
Insight to action on digital carbon impacts

The Challenge for Distribution - a researched example

Research carried out by University of Bristol into environmental impact of YouTube service through to user devices.

Largest single contributor to energy consumption is cellular mobile network.

Mostly for listening to music on the go (i.e not watching the video).



The Challenge for Distribution - a researched example

Research carried out by University of Bristol into environmental impact of YouTube service through to user devices.

We need to design for sustainability

Largest single contributor to energy consumption is cellular mobile network.

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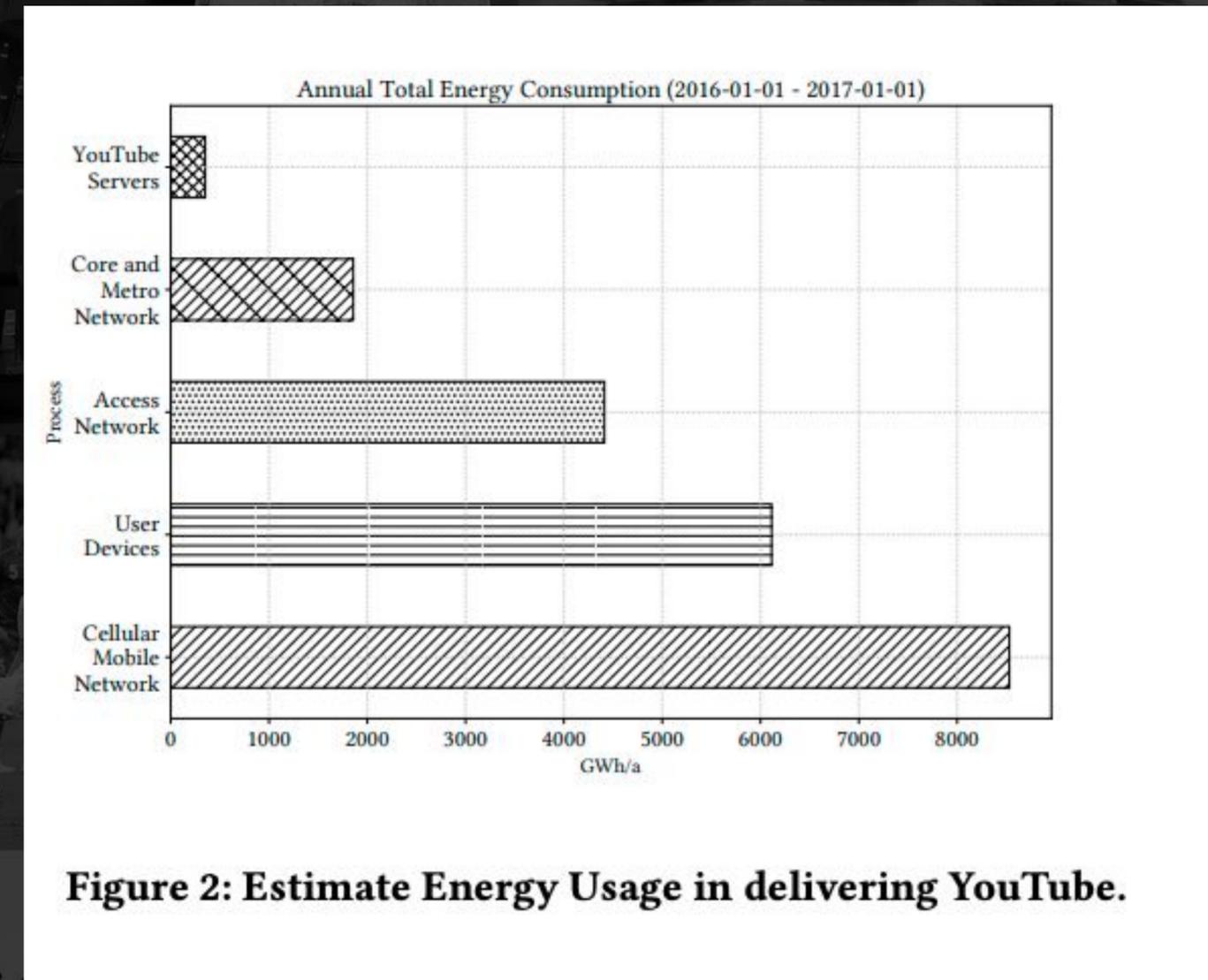


Figure 2: Estimate Energy Usage in delivering YouTube.

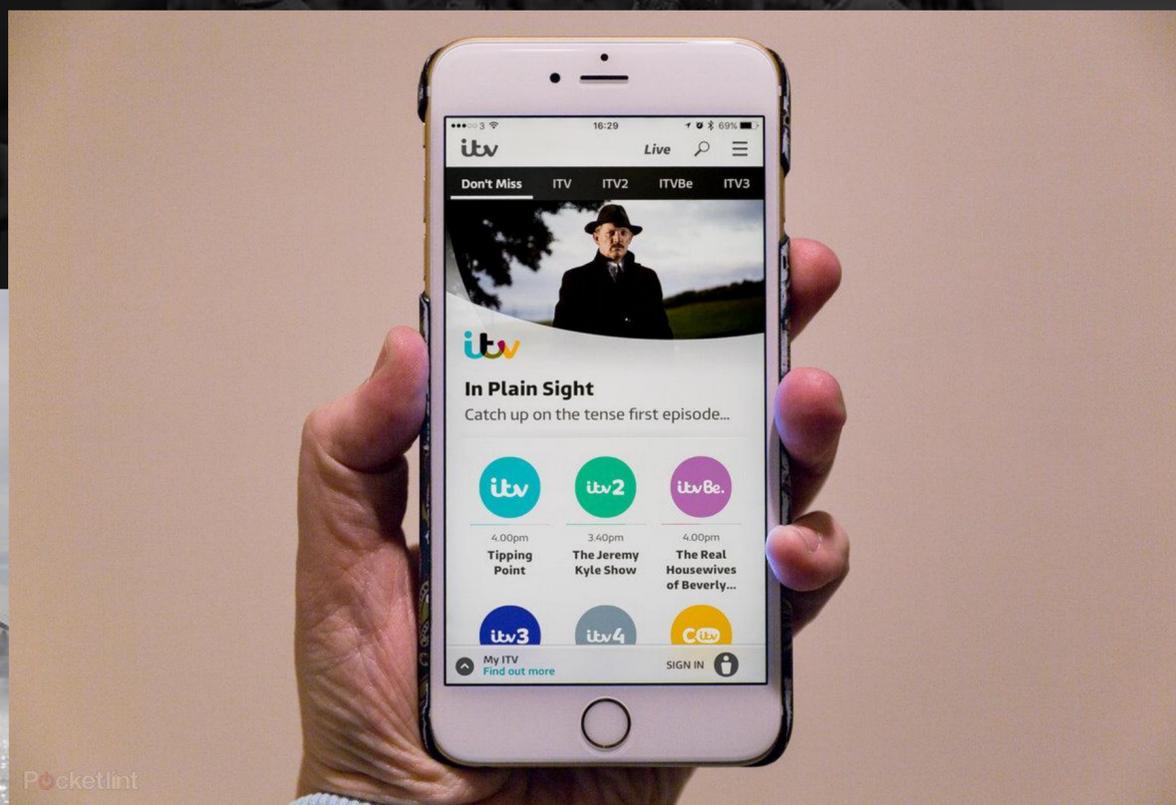
Designing for Sustainability

Broadcasters could not only give viewers the choice to watch mobile content in SD only (reducing bitrate) but also make them aware how it would reduce carbon.

- *Can Quality Defined Variable Bitrate help us encode more efficiently?*
- *Would people choose to watch shows in SD if they knew of the Environmental Benefits?*
- *'Dirty Streaming' doc (BBC)*



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The Challenge for Distribution - on the subject of mobile data

Energy intensity of
cellular data networks

compared to
fixed line (copper and fibre) networks

The Challenge for Distribution - on the subject of mobile data

Energy intensity of

cellular

**Between 50 and 160 times more
energy used per MByte
transferred***

compared to

fixed

***lots of factors vary including type of mobile network, energy sources and where you get the data from.**

(copper and fibre) networks

Hosting and data centre location can also be important

Ireland

400g CO₂ per kWh of electricity



Hosting and data centre location can also be important

Ireland

400g CO₂ per KWh of electricity

UK

250g CO₂ per KWh of electricity



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France

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Hosting and data centre location can also be important

Ireland

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France

50g CO₂ per KWh of electricity

Iceland

0g CO₂ per KWh of electricity

Poland

850g CO₂ per KWh of electricity



The Future

- Hosting of more virtualised services held in datacentres / the 'Cloud' (less on-prem).



- Increased awareness of when energy is best used via information sites such as:
<https://www.carbonintensity.org.uk/>

Sun + Wind = low intensity



2-Day Carbon Intensity Forecast

+ Today	236	290	148
+ Tue	275	313	245
+ Wed	255	295	213

Values are the average, max, and min Carbon Intensity in gCO₂/kWh for each day

"The Stone Age didn't end for lack of stone, and the oil age will end long before the world runs out of oil."
Yamani

"We are, let's face it, in the middle of an industrial revolution. It's every bit as dramatic as anything in the 19th Century. Viewing habits, advertising technologies, methods of production, how and where we work ... such dramatic change."
ITV Chairman, Sir Peter Bazalgette, Sept 2020

THANK YOU FOR LISTENING

tim.guilder@itv.com

<https://www.itvplc.com/socialpurpose/reducing-environmental-impact>

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