State of the Industry

2024

DCF
DIGITAL
CONNECTIVITY
FORUM

Contents

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11 out of 12

have set some form of net zero target

3 out of 11

had changed their energy procurement in the past 12 months

75%

have validated science based targets

50%

have fleet transition targets

70%

Identified renewable energy transition as the largest driver for operational emissions decrease to date

90%

Identified green skills gap as a barrier

5 out of 11

Identified fleet transition as a potential large scale driver for scope 1 & 2 reductions

Will Ennett

Chair of the Digital Connectivity Forum Climate & Sustainability Working Group

Foreword

The members of the Climate & Sustainability Working Group have recognised the urgency of climate change.

As you will see through the data, many companies are already taking impressive action to curb their environmental impact. This report however also showcases our desire to come together as companies and discuss common risks and opportunities which exist in achieving our respective net zero plans.

The report examines past performance and how businesses have been decarbonising to date. It also looks to the future, gauging ways to achieve further reductions, as well as diving into complex topics such as 'scope 3' emissions.

Whilst the focus is on climate change mitigation, companies were also asked about climate change adaptation, enablement, and green skills necessary for a transition to a net zero sector.

I want to take this opportunity to thank all members for their enthusiastic collaboration, and to the Digital Connectivity Forum team for their tremendous dedication in creating this report.

Present

The survey findings were conducted amongst members of the Climate & Sustainability Working Group and represent 12 of the UK's major telecoms players. Responses varied from network operators, internet service providers and vendors. The information shared by survey respondents is that which is publicly available. Respondents were asked not to share information which could be considered commercially sensitive.

SBTi comitted or other targets 25%

SBTi validated 75%
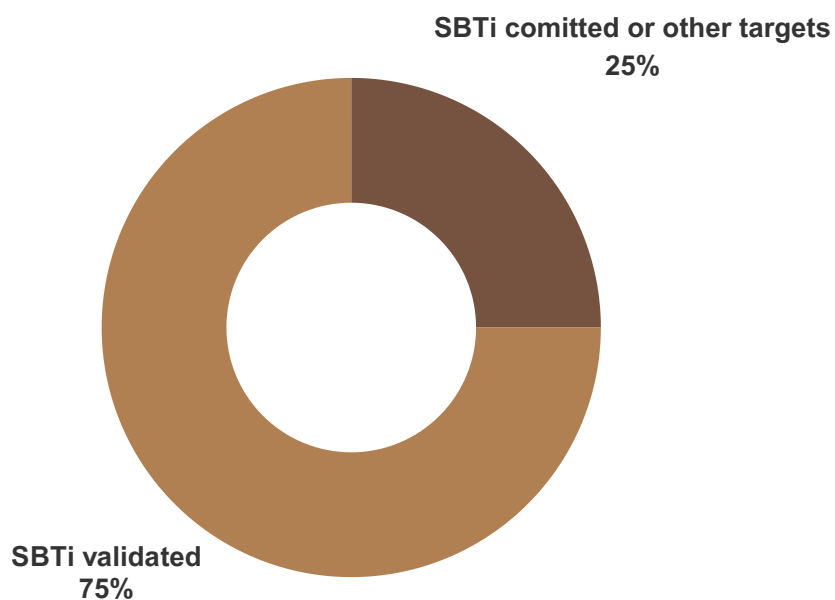
The cornerstone for acting on sustainability is setting credible carbon reduction goals.

Reduction goals should involve clear targets and measurable outcomes which can be used to report progress. 75% of the companies that were asked already have validated science-based targets. The remaining 25% of responses indicated that they either intend to set targets, are working towards SBTi validation or have other relevant targets in place.

This high level of commitment to clear, measurable targets, either in line with SBTi standards or aligning to different goals, shows that there is appetite and commitment across the industry for sustainability change.

Operational Emissions

" What have been the largest drivers in company emissions reduction across scopes 1 & 2 to date? "

Focusing on past performance, companies were asked what the largest drivers have been in company reductions for scope 1 & 2 so far. As a sector we see several key themes emerging, with renewable switching as a key leader in decreased emissions.

1 Switching to renewable energy sources via avenues such as Renewable Energy Guarantees of Origin (REGO) contracts or switching to other green energy sources or renewable energy tariffs ranked as the highest driver of scope 1 and 2 reductions.

2 Fleet transition, either to hybrid or full electric, ranked as the second largest driver of scope 1 and 2 reductions.

3 Reduction of fluorinated gasses, for example by removing fluorinated gas refrigerants from networks by reducing air-conditioning fleet and maximising the use of free-air cooling ranked as the third most reported driver of scope 1 and 2 reductions.
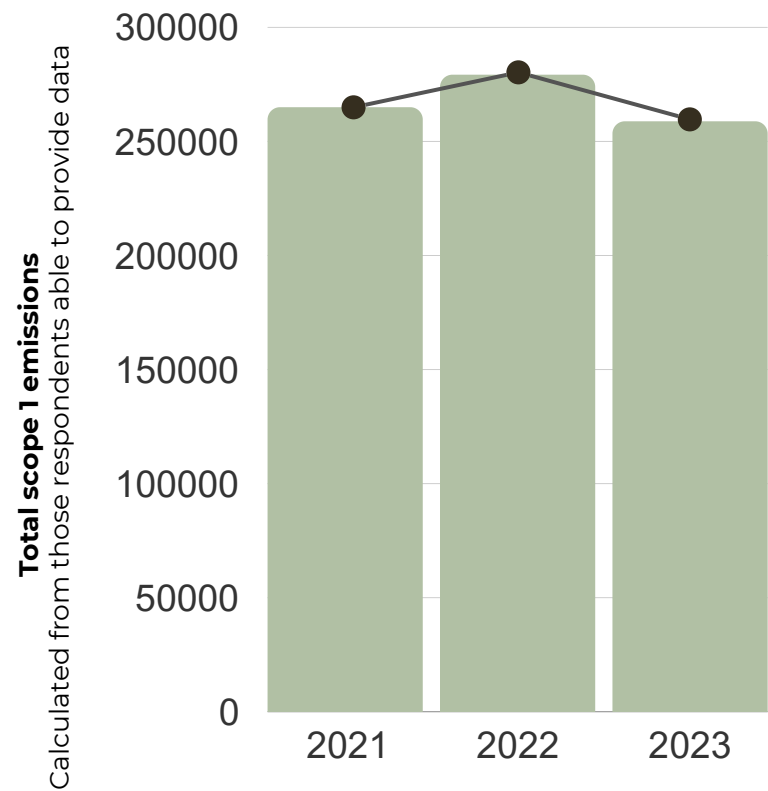
Renewable, green energy switch

Fleet Transition

Fluorinated gas reduction

Past

Results indicated that when considering aggregated industry emissions for scope 1 across the past three years, there is an uptick of total industry emissions in 2022 followed by a decrease in 2023.

Total scope 1 emissions
Calculated from those respondents able to provide data

Total scope 2 emissions

Calculated from those respondents able to provide data
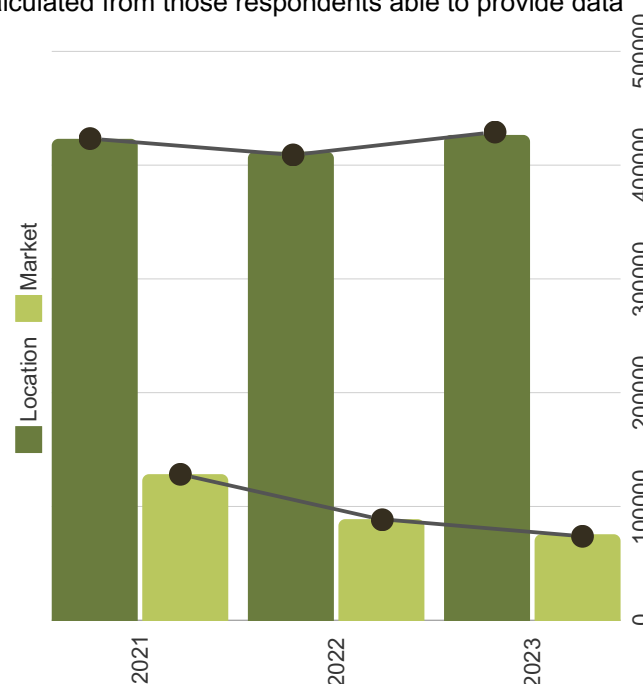
Results for scope 2 trends indicated a slight increase in location-based emissions covering 2023. Market-based emissions continued to show a downward trend of reduction which could be driven largely by the continuation of the switch to renewables across the sector.

Energy

Companies were asked in percentage terms the amount of electricity consumption that is sourced from renewable energy across their organisations, including those categorised under market-based reporting criteria. 8 in 10 respondents indicated that they source more than 80% of their electricity consumption from renewable sources.
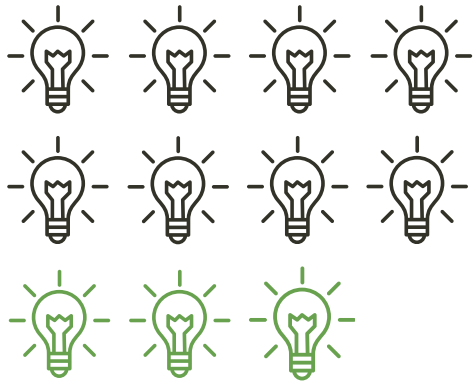
> ## What energy contacts do you currently hold?

Many respondents operated with multiple energy contracts at the same time.

1 Renewable Energy Guarantees of Origin (REGO)

2 Onsite renewables

3 Power Purchase Agreements (PPA)

3 out of 11 respondents had changed their energy procurement within the last 12 months.

In the 12 months preceding the survey, only three companies indicated that they had changed their energy procurement, such as by switching to a REGO deal or any of the contract options indicated above. Where changes had occurred, these were indicated as being to new green energy deals or to increased levels of renewable sourcing.

Onsite Renewable

PPA

REGO

EAC

Fleet

Fleet transition was ranked as the second largest driver of overall scope 1 and 2 emissions reductions to date. In line with this, companies reported that their electric and hybrid fleet levels are increasing. When asked, some companies reported that up to 50-86% of their fleets are now electric or hybrid.

Those companies indicating very high levels of hybrid or electric vehicle shift were individual, rather than a broad picture across industry, meaning that overall results still show that traditional fossil fuelled vehicles are dominant at an industry wide level.

However, the results also suggest a shift towards change with seven of those respondents who were able to disclose their fleet figures, indicating that over 5% of those fleets were electric or hybrid powered.

Of overall respondents, half indicated that they have set targets regarding fleet transition in line with specific dates. The results indicate an appetite for electric and hybrid vehicle adoption, as well as a strong indication that these changes are driving reduced emission results. However, many companies also indicated barriers towards achieving high levels of fleet transition such as cost, charging infrastructure accessibility, and market issues including availability and lead time.

Not applicable
3

0-10%
3

percentage of fleet which is electric or hybrid

75-90%
2

10-20%
3
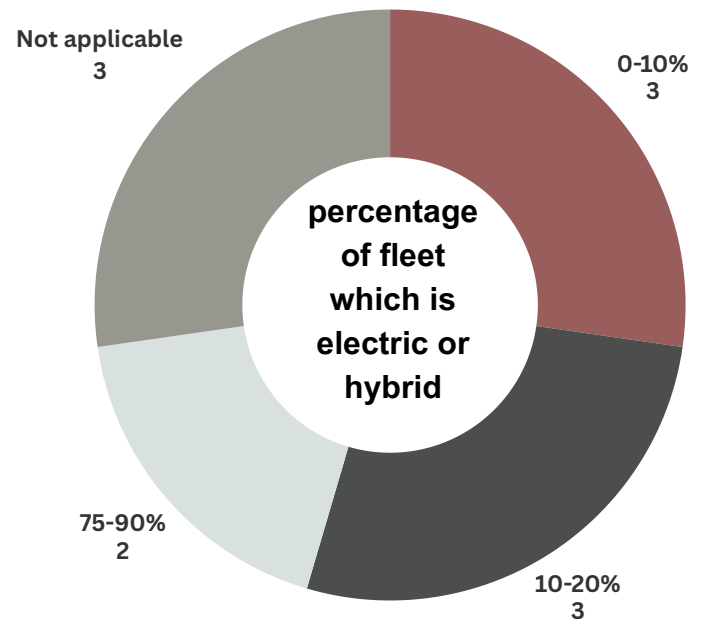
*of 11 respondents who were able to share data

Barriers to fleet transition

The survey asked respondents to identify key barriers towards electric and hybrid vehicle transition of their fleet(s). Broadly, the highest-ranking barriers centred around cost and availability. There were however other barriers noted, as well as areas that require further support, such as government subsidy and a consistent regulatory environment for companies to transition within.

Cost

There has been a worsening business case for EVs within the last 18 months as prices rise and grants reduce. This, in addition to increased charging costs being driven by rising energy prices creates a more challenging financial environment in which to transition. In addition, zero emissions vehicles, in particular vans and other large vehicles required by telecoms company fleet(s) remain more expensive to purchase than traditional diesel or petrol vehicles of the same specification.

Availability

Long lead times for electric vehicle purchasing combined with an overall lack of variety of electric vehicles suited to telecoms fleet requirements.

Infrastructure & Technology

Lack of availability of public charging infrastructure which can lead to charging difficulty during working hours. In addition there is a need for battery technology that can guarantee charge life is sufficient for working hours to avoid operational downtime.

Government

Government subsidy is currently set to elapse in 2024. This cessation, combined with a lack of consistency, including target roll backs, risk the possibility of damaging automotive investment for the UK.
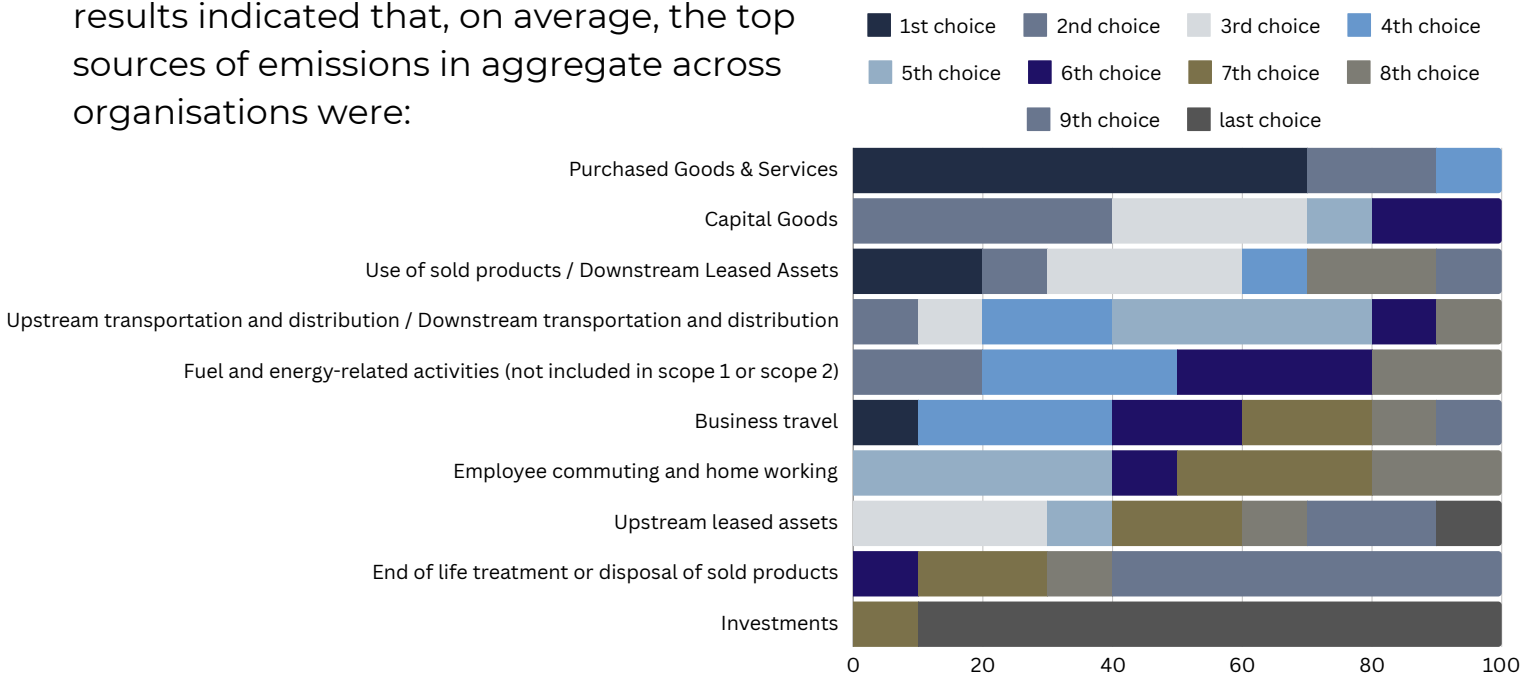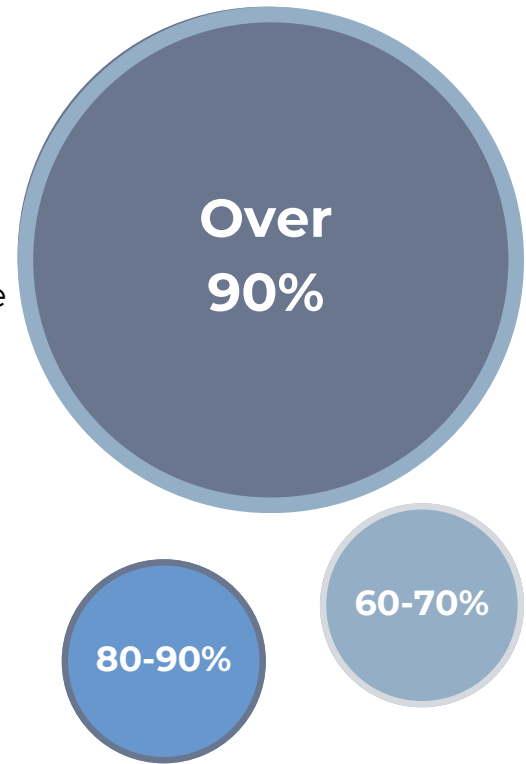
Scope 3 Emissions

Scope 3 emissions represented the clear leading factor facing overall telecoms sustainability. Scope 3 emissions, those found within the value chain of an organisation, present as the most difficult areas to accurately report and reduce.

Responses to the survey (where companies were able to provide answers for the scope 3 percentage of their overall emissions), indicated that over three quarters of these companies attributed over 90% of their total emissions as being classified within scope 3 criteria. In addition to this, some indicated that scope 3 percentage share was as high as 99% in some cases.

The survey asked respondents to rank their company's top five sources of emissions for scope 3 across a selection of options. The results indicated that, on average, the top sources of emissions in aggregate across organisations were:

Over 90%

80-90%

60-70%

Legend:
- 1st choice
- 2nd choice
- 3rd choice
- 4th choice
- 5th choice
- 6th choice
- 7th choice
- 8th choice
- 9th choice
- last choice

Chart categories:
- Purchased Goods & Services
- Capital Goods
- Use of sold products / Downstream Leased Assets
- Upstream transportation and distribution / Downstream transportation and distribution
- Fuel and energy-related activities (not included in scope 1 or scope 2)
- Business travel
- Employee commuting and home working
- Upstream leased assets
- End of life treatment or disposal of sold products
- Investments

Axis: 0, 20, 40, 60, 80, 100

Industry successes

The survey asked companies to provide examples of organisational activity that demonstrates scope 3 reduction progress. Responses reflected a broad range of action within this area, with focuses on waste and waste management, supplier engagement and circularity, as well as data use and analytics.

Supplier Engagement

-Including carbon reduction clauses into supplier contracts.
-Setting supplier climate targets for high emitting and strategic suppliers.

"We have set a supplier climate target for 350 high emitting and strategic suppliers to set their own 1.5°C aligned climate targets. This means that suppliers should halve absolute greenhouse gas emissions by 2030, and their commitment should be made public"

Circularity & Product Lifecycle

-Accelerated device refurbishment.
-Incorporation of product Life Cycle Assessment (LCA) data into future emissions reporting.
-Assessment of lifecycle services for commercial feasibility such as repair, insurance products and product leasing.
-Company led advocation for national improvement on e-waste recycling systems.
-Development of communication campaigns targeted at e-waste and the environmental impact of device and technology usage.

"We have a Global Product Take-Back Program, which is available in 180 countries, the program ensures that products at the end-of-life stage are recycled with high environmental standards. More than 98% of the material content is recycled."

Data Centres

-Working with relevant stake holders to ensure that third party data centres have credible, and actionable carbon reduction goals.
-Consolidation of co-located data centres where applicable.

"Ensure all third-party data centres have credible carbon reduction goals."
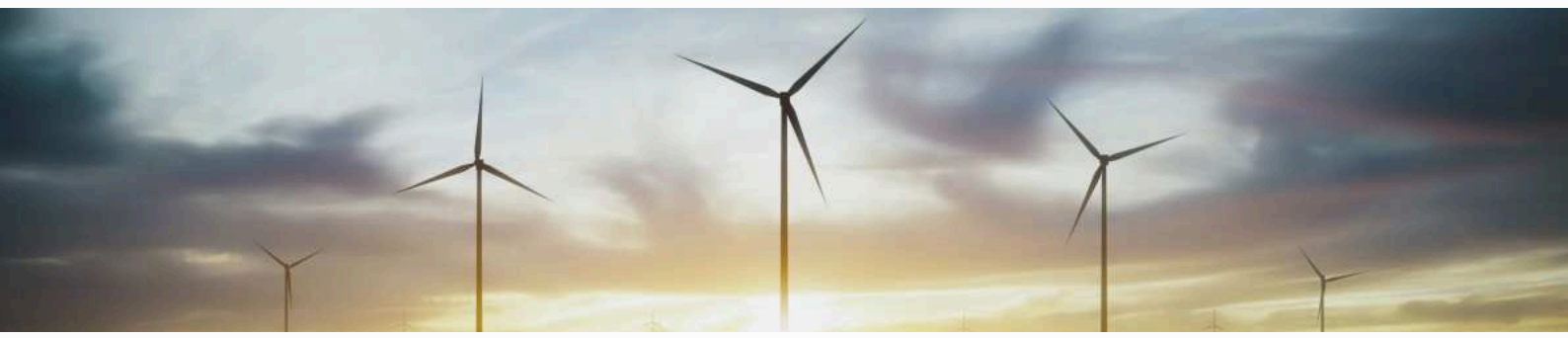
Customer

-Active customer engagement

"Build upon eco-labelling schemes, such as Eco Rating, to bring clear, credible information about environmental impacts to consumers, at the point of sale."

Data

-Data Analysis to generate scenario modelling and identify hot spots to allow focus on the most material and influenceable source of emissions within organisational activities.
-Willingness and ambition to coordinate with other telecoms stakeholders to improve availability, consistency and accessibility of quality carbon data.

"We aim to work together with others in the telecommunications value chain to improve the availability, accessibility and consistency of product carbon footprint data. We aim to build organisational, process and systems capability to draw insights and analysis from this data, so that it can be used to inform procurement and capital investment decisions – creating a shift towards a lower-carbon supply chain for the goods, capital equipment and services that we buy."

Employee & Contractor Engagement

-Data Analysis to generate scenario modelling and identify hot spots to allow focus on the most material and influenceable source of emissions within organisational activities.
-Willingness and ambition to coordinate with other telecoms stakeholders to improve availability, consistency and accessibility of quality carbon data.

"Employee commuting push - offering lime e-scooters, discounted public transport, salary sacrifice EVs and cycle 2 work schemes."

Waste & Waste Management

-Reduction(s) of single-use plastic, and other waste, from packaging and equipment.

"We have a zero-landfill waste and zero single use plastics policy and have partnered with Eco Schools to donate all unusable waste materials to be made into art projects."

Supply Chain Case Study

"We have previously identified that Scope 3 makes up over 95% of our total carbon emissions and we use a hot-spot analysis and scenario modelling to allow us to focus on our most material and influenceable emission sources.

For our supplier hot spot, we prioritise using actual data and LCAs across our portfolio, and only revert to spend data or proxy data to calculate emissions where real data isn't available. This creates a list of suppliers for the previous year and the relevant scope 1-3 emissions for services provided to us. We have recently partnered with a consultancy to work with our top 15 suppliers who make up over 50% of our carbon emissions.

These suppliers were chosen on the basis of the hot-spot report and their expected longevity within our supply chain. These suppliers are engaged with to align them with our net zero 2040 target, and to obtain product level LCAs and emissions data for the specific products they supply to us. This data will then be fed into a model breaking down the emissions per product, per supplier, per year, so we can see the exact benefit of a specified supplier action will take on our emissions forecast.

For example, we will be able to see the benefit from a mobile phone component factory turning to green energy in 2027, and how it benefits the emissions of 2 of 5 products supplied by that supplier. We believe it is essential to decouple emissions from spend and allow us to see the material benefit of initiatives which we take in partnership with our supplies. Once we have engaged with these suppliers, we will move onto the next priority suppliers using any lessons learned or best practice from the initial process"

Climate Resilience

Climate resilience, including the way in which organisations accurately anticipate, prepare and respond to climate related events and shifting weather patterns is becoming a critical element of business strategy.

The survey asked companies to provide examples of current or planned activity in reaction to the need for greater climate resilience. Examples provided by respondents included:

1 Deployment of durable fibre infrastructure that is able to withstand increased temperatures.

2 Temperature control of fibre exchange (FEX) sites using highly efficient low power usage effectiveness (PUE) environments allowing for homeostatic temperature control despite increased external temperatures.

3 Industry wide updating of fixed and wireless products and services to provide improved resilience against extreme weather events and chronic weather pattern shifts.

4 The retirement of 2G and 3G networks was also cited as an opportunity for improved investment and provision of 5G connectivity. The improvement in wireless, as opposed to more traditional fixed connectivity, could provide wider resilience for use when broadband and tv services are disrupted, either by extreme or unusual weather events or other factors, strengthening connectivity resilience across emergency situations.

Telecoms as an enabler

Whilst being a substantial global polluter, telecoms can also act as an enabler for decarbonisation across other industries and wider society.

Examples of enablement through telecoms and connectivity could include the facilitation of the work from home shift decreasing daily commuting, or the availability of online video conferencing enabling national and international meetings without additional travel requirements.

In response to the survey, one company indicated that through their products and services over 29 million tones of carbon had been preventing from entering the atmosphere in 2022. This was facilitated by the utilisation of Internet of Things (IoT) applications, for example smart metering, as well as other applications and uses that supported consumers to make sustainable choices.

Research that was conducted by one company stated a clear link between digitalisation and decarbonisation, wherein where there was a 10% increase in mobile broadband penetration, there was a 7% reduction in CO2 emissions per capita.

The results for decreased emissions per capita could be driven by a variety of factors, including mobile advancement enabling improved data send to support data driven grid transition, connecting sensors and charging points for improved electric vehicle driven fleet efficiency, and more traditionally acknowledged routes such as decreased commuting emissions.

Connectivity can also support data gathering in other ways, such as using household broadband data via connectivity equipped smart meters and low-cost sensors to measure key performance parameters on a property-by-property basis. This can guide methodology for optimising specification, design and management to support the transition to heat pumps in domestic homes.
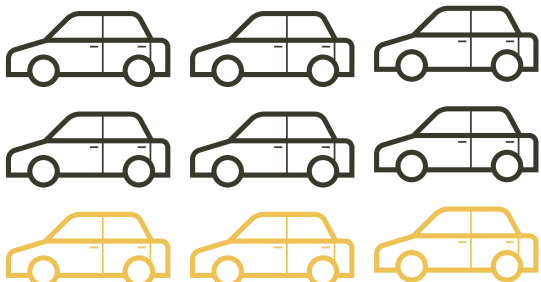
When asked for examples of their company acting as an enabler for decarbonisation, respondents provided a broad range of feedback. These included:

- Installation of air quality and temperature sensors at applicable sites which were used to collect data and make improvements to future sustainability strategy.

- Use of existing infrastructure through physical infrastructure access (PIA) to decrease carbon and material use of building new duct and pole routes.

Future

As the industry's sustainability levels mature, many obstacles such as cost, behavioural change and technological availability and advancement remain. Respondents to the survey were asked to describe the drivers they consider as having the largest potential for reductions across scope 1 & 2 within the next one to two years.

1 Fleet electrification was indicated as a driver considered to have significant potential to reduce emissions in the short to mid-term future.

2 Switching to renewable energy sources and contracts for facilities and offices.

5 out of 11 highlighted fleet transition as a driver with the largest potential for scope 1 & 2 reductions for their business.

3 Reduction of hydrofluorocarbon (HFC) and fluorinated gas use from networks and data centres.

4 Using data analytics to identify energy consumption hotspots to drive peripheral decreases through improved reduction strategy.

In keeping with the themes that emerged from the earlier question covering drivers that have had the greatest impact on scope 1 and scope 2 reductions, similar themes remained when considering future reduction potential. A key difference was the emergence of data driven strategy for future reduction potential.

Case Study

We are continuing to invest in rationalisation efforts to eliminate legacy networks while innovating infrastructure as part of our telco cloud journey. Additionally, we are transitioning to highly energy-efficient servers within our technology centres, alongside natural air-cooling systems replacing traditional mechanical methods. We are deploying smart metering technologies and harnessing the power of Big Data analytics, incorporating Artificial Intelligence and machine learning algorithms to help identify energy consumption hotspots and take targeted action to enhance the energy efficiency of our network infrastructure. We started the phase out of FM200 at our technical sites in FY23 and we will continue the replacement of fire suppression gas with inert gas in the coming years.

Levers to decarbonisation

The survey asked companies to define levers they consider as having the most potential for impact in sustainability and overall decarbonisation. The results showed several key themes such as regulatory changes and stability, subsidy provision and grid decarbonisation.

Policy & Regulation

Results indicated a need for increased clarity for policy measures and regulatory environment. EV public charging policy and greater policy support for commercial fleets were both cited as areas of potential benefit. In addition, net zero commitments lead by Government were ranked as key factors for industry wide decarbonisation. Suggested commitments included increasing minimum sustainability standards for public procurement, as well as incentivising businesses to adopt clean energy.

Grid Decarbonisation

Ensuring the continued trajectory of decarbonisation of the grid to be completed by 2035 was identified as a key lever for decarbonisation as grid intensity increases.

Industry Change

Industry change, such as sustainability focused corporate culture, widespread reduction target adoption and active third-party engagement, including data centres and supply chain, was reported by responding companies as being a necessity for industry improvement.

Subsidy & Incentives

Improved certainty for sustainability incentivisation and subsidies ranked as a key lever, with particular attention given to:

1. EV subsidy and grants, including EV charging
2. Renewable energy systems
3. Future certainty for REGOs
4. Research and development funding

Standardisation

Standardising and the simplification of reporting requirements ranked as an identifiable opportunity for businesses to focus on delivering decarbonisation actions through streamlined data collection.

The implementation of strong standards and standardisation could alleviate uncertainty that the renewable sourced energy used by suppliers complies with the criteria that is necessary to be considered truly renewable.

Other actions are already in place or moving forward. With The Green House Gas (GHG) protocol now enabling reflections on market-based energy, rather than location-based only, this switch will necessitate that Government leans further into the GHG protocol, alongside the tools the industry is reporting through for alignment.

Green Skills Adoption

Green skills gaps were identified as a key barrier for sustainability progress. Whilst a barrier in their absence, the adoption of green skills through the creation of internal training, as well as building sustainability into standards and professional membership bodies and qualifications for different professional spaces could be a powerful lever for progress.

Conclusion

From the results we can see that whilst there are clear avenues that have generated and remain powerful routes to decreased emissions, such as renewable energy switching, fleet transition and fluorinated gas reduction, new avenues are emerging such as harnessing the power of data analytics to improve carbon reduction strategy and improving the understanding of and training for sustainability across companies.

As new challenges emerge, such as the increasing need for climate resilience as well as remaining barriers for industry wide adoption of decarbonisation levers, cooperation and engagement across industry, government and other stakeholders will be a powerful tool for overcoming barriers. Ensuring the planet is a core consideration of a sector that can lead the way for net zero as it improves and enables sustainability progress.

Indeed, collective action is an overall challenge to protecting our planet; it is a challenge sometimes dubbed the "tragedy of the commons".

We hope that this state of the industry report can act as a catalyst to break that pattern; that it offers potential for future ways to work together, and in turn can deliver significant improvements to the environmental footprint of the UK telecommunications sector.
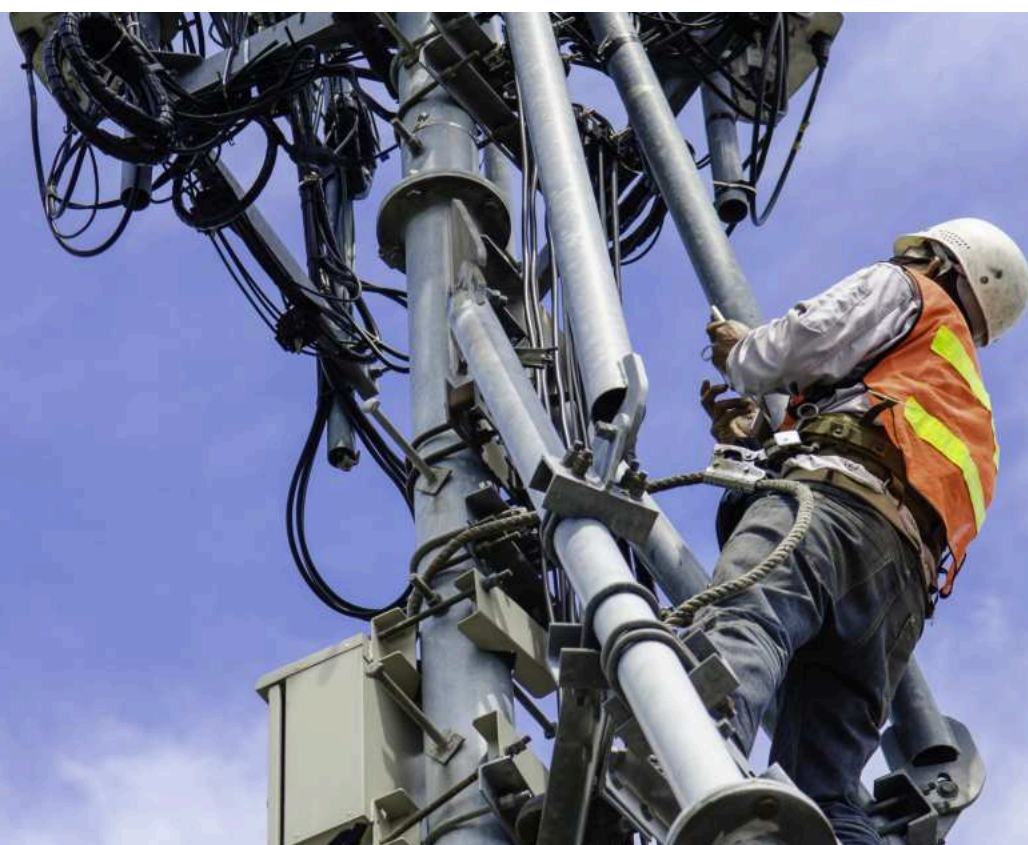
About the Digital Connectivity Forum

The Digital Connectivity Forum (DCF) is the UK Government's primary advisory group on the provision of fast and effective connectivity for all. Convening the sector into an expert advisory grouping, the DCF uses collaboration, evidence building and research to make recommendations to Government, regulators and industry to realise the societal and economic value of ubiquitous coverage.

In January 2023, the DCF convened its Climate & Sustainability Working Group to focus on climate and sustainability related issues facing the UK telecoms sector.

The working group is comprised of sustainability professionals from across the connectivity space and provides a platform for expert voices to discuss sustainability as the industry moves towards net zero.

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