

# Accelerating the energy transition for Telco Networks

How do operators both maintain and expand networks  
whilst delivering on ambitious Net Zero commitments?





# Market Ambition

## NETWORK OPERATORS ARE SETTING BOTH AMBITIOUS EXPANSION AND NET ZERO COMMITMENTS

The UK Government released a policy paper in March 2021 outlining how Britain is going to 'Build Back Better' and return to growth after the pandemic. Part of the growth strategy focuses on the need to have fast, reliable connectivity and high-quality infrastructure but this shouldn't come at a cost to the environment<sup>1</sup>.

By 2025, the UK Government has set the telco sector an ambitious goal to increase its gigabit capable broadband from ~30% access for UK premises today to a minimum of 85%, working with the industry to remove barriers to get closer to 100%<sup>2</sup>.

Beyond these forecast expansions in Fibre to the Premises (FTTP) networks, there is also an ambitious 95% growth target for 4G by 2025 through the Shared Rural Network (SRN), and the continued build out of 5G networks evidenced by the recent award of £1.4bn of spectrum.

In parallel, over the last few years we have seen technology and telco organisations revise and accelerate their carbon neutral or Net Zero commitments in the following ways:

- ▶ Bringing forward target dates for 100% electricity usage from renewable sources to 2025 or earlier
- ▶ Removing carbon emissions from operations and significantly reducing carbon emissions from supply chain, travel, joint ventures, and products by 2030 or earlier
- ▶ Delivering on targets to become fully net zero across Scope 1, 2 and 3 carbon emissions by 2040 or earlier

1. Build Back Better: our plan for growth (March 2021) - <https://www.gov.uk/government/publications/build-back-better-our-plan-for-growth/build-back-better-our-plan-for-growth-html>

2. National Infrastructure Strategy, HM Treasury (November 2020) - [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/938539/NIS\\_Report\\_Web\\_Accessible.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938539/NIS_Report_Web_Accessible.pdf)

# How to deliver *both* accelerated network expansion and energy transition ambitions?

THE KEY TO ANSWERING THIS QUESTION WILL BE THE ABILITY OF TELCOS TO DECOUPLE NETWORK EXPANSION FROM INCREASED CARBON EMISSIONS, WITHOUT ADDITIONAL COST EXPOSURE OR INTRODUCING ADDITIONAL RISK TO THE BUSINESS

## Energy demand growth, cost pressure and risk exposure

The acceleration of fibre network expansion, 4G coverage and 5G network roll outs will increase overall energy demand for telco network operators, and in turn the level of carbon emissions.

At the same time, an increase in edge services and consumer use patterns demanding faster download speeds, will also see additional load onto data centres. Energy purchasing is typically 5-10% of a telco's operational spend, and with rising wholesale prices forecast in the medium term across all European markets, this will create cost pressures and increased uncertainty over the right strategies and approaches to adopt.

We know from working with Finance Directors, that their priority is certainty and simplicity in any energy purchasing processes. Any changes to the energy purchasing strategies of today will need careful risk management in a way that will not negatively impact an organisation's ability to compete in its chosen markets.

## Levers available to telco network operators

We see **3 key levers** available to telco operators to deliver on energy efficiencies, reduce energy demands and address green supply whilst seeing improvements in operational cost and carbon emissions:

1. **Energy efficiency** through the use of smart sleep and shutdowns (multi-site and site specific) driven by Artificial Intelligence (AI) tools. These can be applied to Radio Access Networks (RAN) and fixed networks, data centres, air conditioning and heating. In addition, decommissioning of legacy architecture such as 2G/3G will be crucial.
2. **Energy demand and optimisation** through robust measurement of consumption, sensors and IoT solutions can be deployed to deliver energy efficiencies and savings across heating, cooling, Time of Use (ToU)/ smart meters, fuel monitoring, on-site energy generation as well as storage and fleet decarbonisation.
3. **Green energy procurement and supply** via green tariffs/certificates, direct contracts with generators (operational and new assets) and direct renewable asset investment.

*We recently worked with a global Tech Major to assess hourly marginal carbon emissions under different scenarios of power market development and under different interventions (including location of new data centres, offsite renewables procurement, and onsite battery use). They are now actively shifting demand in line with those carbon intensities.*





## The time to act is now

We are seeing strong drivers for Corporates and Large Energy Users (LEUs) to take a fresh look at their energy strategy. The starting point for organisations is to understand the science-based targets that have been set, aligning to government targets, understanding the likelihood of their achievability, as well as the implications if they are not met and thus where accountability sits within an organisation.

From that point, we help clients create executable, credible roadmaps for decarbonisation under different scenarios, through the following:

- ▶ Establishing and empowering a central decarbonisation task force, with a Group-wide remit to develop and enact on decarbonisation initiatives
- ▶ In the short term we believe the initial focus should be on Scope 1 and 2 emissions in a clear strategy and delivery roadmap, given these are the priorities on the immediate horizon for 2025 and 2030

**A leading global retailer** was the first major listed company globally to set climate change ambitions for its own operations, in line with the ambitious 1.5 degree trajectory recommended in the Paris Climate Accord.

**As part of that commitment**, a target of procuring at least 20% of its electricity directly from renewable generators by February 2021 was set. In November 2020, this retailer was able to announce that it had met its 2020 renewable energy target; having signed 10 Power Purchase Agreements (PPAs) with 4 separate developers in relation some of the first truly merchant or unsubsidised renewable electricity projects in the UK.

- ▶ Delivering least-cost decarbonisation and near-term profit and loss benefit in a way that may not have been possible without a centralised approach
- ▶ Creating the right framework of incentives to avoid any misalignment between Group/Executive ambitions and country/ business unit priorities
- ▶ Exploring more ambitious and innovative initiatives than may have previously been considered. For example, focusing on the lowest cost renewables markets, exploring cross-border PPAs, and vehicle fleet decarbonisation

For the telco sector, it should be recognised that Scope 3 emissions constitute the material part of the end-to-end net carbon footprint (circa 80%+) across 3 main categories; purchased goods and services, capital goods and the use of sold products.

### Key outcomes Baringa supported to deliver included;

- ▶ The development of a scale portfolio of renewable PPAs with an average annual expected contracted generation of 600GWh p.a., enough electricity to power over 200,000 3 bed households in the UK
- ▶ Saved ~100k tonnes of carbon per annum
- ▶ Unlocked over £250m of low carbon finance into new build projects
- ▶ Created over 413 new jobs in UK renewables

Whilst accepted practice today is to omit Scope 3 emissions from current calculations, to be industry leading, companies should have a plan for reducing Scope 3 emissions following climate science and circular economy principles.

As the telco industry's understanding and alignment of measurement standards for Scope 3 emissions grows, this will become a critical focus for telcos in the medium term.



# How to demonstrate **credible energy transition plans** to shareholders, investors and customers?

## **GLOBALLY, ALL BUSINESSES ARE FACING INCREASED PRESSURE TO ACT ON CLIMATE CHANGE FROM FINANCIERS, INVESTORS, SHAREHOLDERS, EXECUTIVE TEAMS AND CUSTOMERS**

Climate change will impact the whole economy and poses unique physical risks to telco operators including damage to exposed network assets from extreme weather events and long-term shifts in climate patterns (e.g. changing sea levels and rising global mean temperatures).

Banks are now pricing climate risk for the first time, so all sectors with any level of emissions are going to see their cost of capital increasing. This has largely been led by the Taskforce on Climate Related Financial Disclosures (TCFD) requirements (which will be mandatory from 2022), where proactive organisations with credible decarbonisation plans can access financing opportunities.

In Baringa's experience, sustainable debt products can offer in the region of 10-50 basis point (bps) lower interest rates compared to traditional debt, leading to a c.£100-500k saving in annual interest costs for every £100m of corporate debt.

Through our partnership with Blackrock, we are now able to model EBITDA impacts under alternative climate

scenarios, based on both physical and transition risks that organisations face. This outside-in view allows investors to compare industry peers and other industries.

Telco organisations will be keen to know how they compare to the competition and ensure that a fair and accurate view of information is being used.

### **Credibility or 'greenwashing'?**

All major telco operators rely upon the purchase of traded renewable certificates (Renewable Energy Guarantees of Origin / Guarantees of Origin) to evidence their 100% renewable energy credentials.

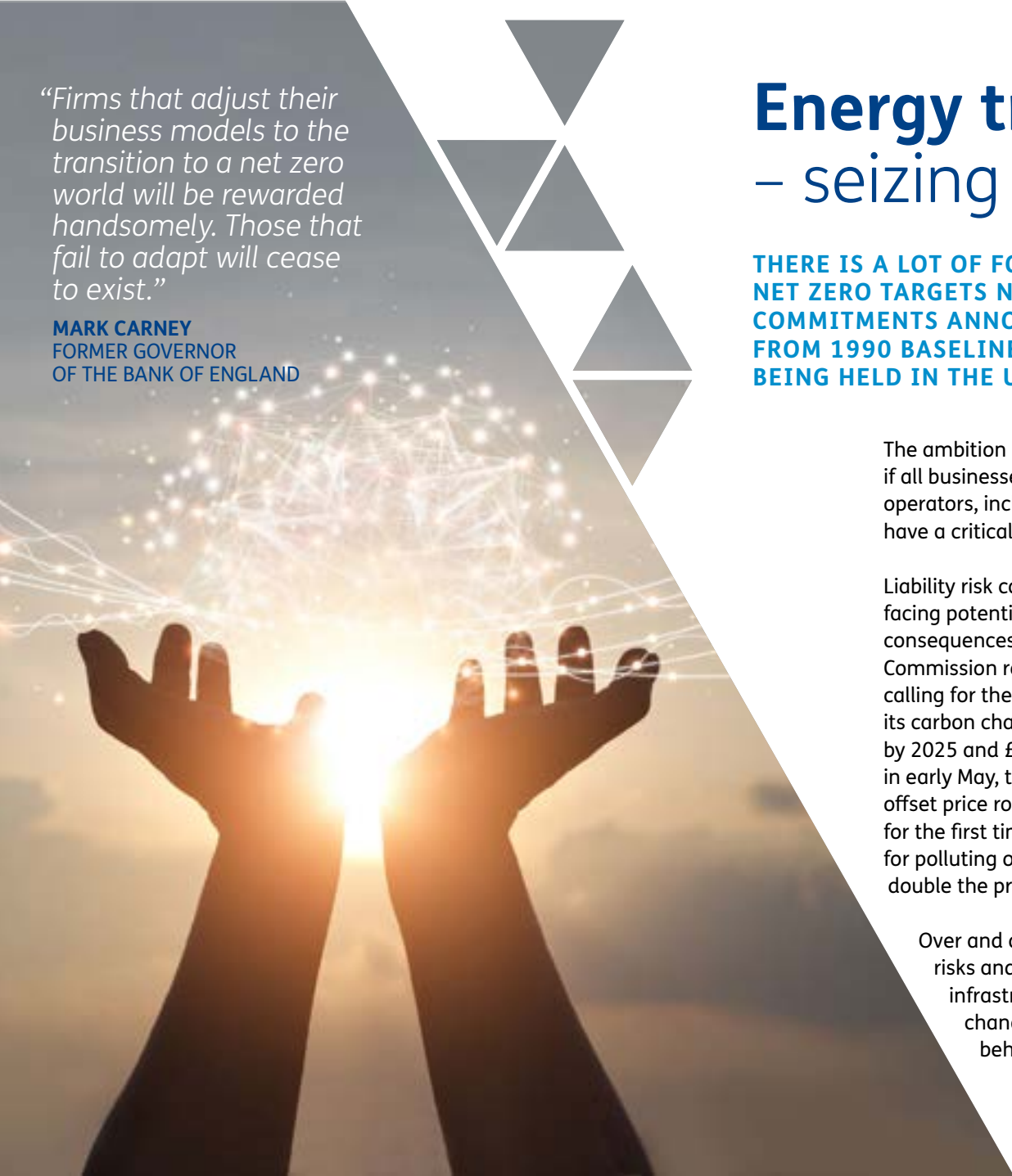
We are seeing increasing 'shades of green' in the procurement of zero carbon electricity (Scope 2) from purchased traded renewable certificates through to the gold standard of matching renewable supply with demand to reach 24/7 renewable supply.

The future credibility of the certificate approach is questionable for 2 reasons; firstly, the price of these certificates is likely to increase, and secondly the liquidity of this market is likely to reduce as more and more corporates seek to use it as their "proof" of 100% renewably sourced power.



If telco operators choose to stick with the certificate purchase route, they may find themselves faced with increased costs or in the worst case, an inability to purchase certificates at all.

Conscientious telco consumers and investors will be quick to highlight 'greenwashing' if sustainability statements cannot be credibly explained. Market leaders in energy transition should use this situation as an opportunity to market alternative 'green' products and propositions.



*“Firms that adjust their business models to the transition to a net zero world will be rewarded handsomely. Those that fail to adapt will cease to exist.”*

**MARK CARNEY**  
FORMER GOVERNOR  
OF THE BANK OF ENGLAND

# Energy transition and Net Zero – seizing the opportunity

**THERE IS A LOT OF FOCUS ON THE UK WITH THE ACHIEVEMENT OF 2050 NET ZERO TARGETS NOW WRITTEN INTO UK LAW, REVISED EMISSIONS COMMITMENTS ANNOUNCED IN APRIL 2021 (78% REDUCTION BY 2035 FROM 1990 BASELINE) AND THE UN CLIMATE CHANGE CONFERENCE (COP26) BEING HELD IN THE UK (OCTOBER 2021)**

The ambition laid out can only be achieved if all businesses are on board and telco operators, including their supply chains, have a critical role.

Liability risk could increase, with firms facing potentially large financial consequences. The Zero Carbon Commission recently published a report calling for the UK Government to increase its carbon charge to £55 per tonne (€60) by 2025 and £75 (€81) by 2030<sup>3</sup>. Similarly, in early May, the European Union carbon offset price rose above €50 per tonne for the first time<sup>4</sup>, pushing up the cost for polluting organisations to more than double the pre-pandemic levels.

Over and above the direct physical risks and impact to assets and infrastructure posed by climate change, we will see market and behavioural change come

from evolving consumer preferences and behaviours, pressure from investors for greater accountability, and clearer environmental reporting.

Telco operators also have a key leadership role to play in decarbonising other sectors. The connectivity opportunity from 5G network roll outs will drive significant carbon reduction in transport, utilities, home energy, manufacturing and healthcare sectors. With this will come greater understanding of how cities, homes, and industries of the future can be even greener.

For those telco operators who act in a timely and effective way on their energy transition plans, there are many opportunities; operational efficiency, customer loyalty, attracting talent, capital market reputation and resilience.





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Baringa are one of the world's top-rated energy and environment consultancies, with 20 years' experience advising governments, the energy industry, and financial services on climate strategy.

We were the Gold rated Advisor in Energy, Utilities & Environment in Financial Times in 2021, and have the market leading Climate Change Scenario Model for the Financial Services industry.

We have delivered Energy Strategy advice globally to support telco, Technology Majors, Major Retailers and Governments.

We recently announced that BlackRock and Baringa Partners have entered into a definitive agreement for BlackRock to acquire and integrate Baringa's industry-leading Climate Change Scenario Model into BlackRock's Aladdin Climate technology.

The new long-term partnership is a significant milestone for both firms, as they collaborate to set the standard for modelling the impacts of climate change and the transition to a low carbon economy on financial assets for investors, banks and other clients.

This is really exciting for us as we scale our work with clients in the energy transition and the transition to a low carbon future and help investors, banks and the companies themselves understand and measure climate risks and opportunities – the new partnership provides our clients perpetual access to the model and is likely to be the global market standard for climate change risk modelling.

[www.baringa.com](http://www.baringa.com)

GHG	DEFINITION
<b>SCOPE 1</b>	Direct emissions from company owned sources: <ul style="list-style-type: none"> <li>▶ Stationary combustion e.g. office heating</li> <li>▶ Mobile combustion e.g. Company Vehicles</li> <li>▶ Fugitive emissions e.g. refrigeration</li> <li>▶ Process emissions e.g. manufacturing fumes</li> </ul>
<b>SCOPE 2</b>	Indirect emissions – owned – via the generation of purchased energy from a utilities supplier
<b>SCOPE 3</b>	Indirect emissions – not owned – created anywhere in the upstream supply or downstream value chain. There are 15 categories, not limited to: employee commuting, waste, purchased goods/services, investments, franchises, use of sold products