



Session 1 Sustainability SHE Management Conference 2022 presentations

The logo for the SHE Management Conference consists of a teal square containing the lowercase letters "she" in white. Below "she", the words "safety, health & environment management conference" are written in a smaller white font.

she
safety, health
& environment
management
conference

29-30 June 2022 Brighton

Hosted by



The Safety, Health and Environment Management Conference is an ENA event

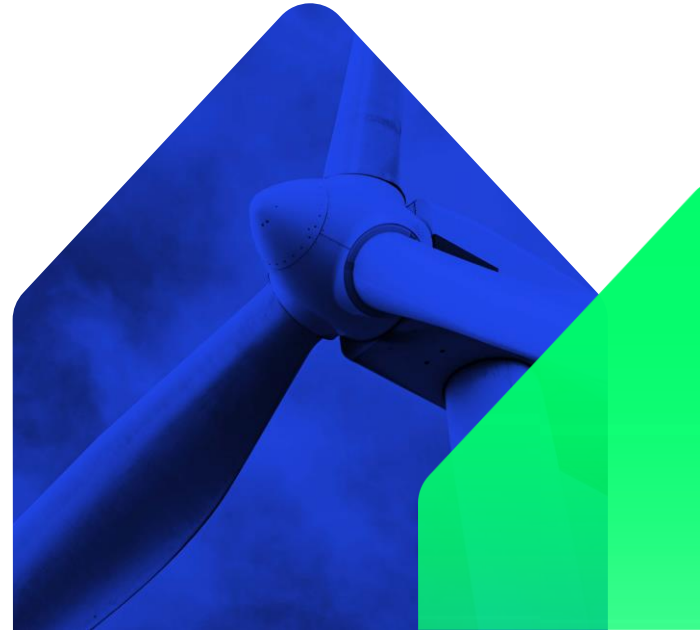
2022 ENA SHE MANAGEMENT CONFERENCE

Sustainability & UK business approach

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OUR MISSION

**To accelerate the move to
a decarbonised future.**



We bring our customers on a journey towards climate leadership



Organisational footprinting

Start to understand your carbon footprint, measure your Scope 1 and 2 emissions and build awareness of your organisation's impacts.



Science-based target setting

Set ambitious and climate-science aligned targets to reduce your carbon emissions and to demonstrate your organisation's commitment to sustainability.



Certification and disclosure

Communicate your efforts to the public with a robust third party validation. Build a strong message around the adoption of international standards and frameworks.

Value chain footprinting

Assess the wider emissions in your upstream and downstream activities, calculate your Scope 3 emissions and increase your understanding of the broader impacts of your business.



Strategic sustainability advice

Develop a long-term plan on how you will achieve your targets. Assess the feasibility of your strategy: model existing initiatives, identify new ones, define the most relevant KPIs.



Context

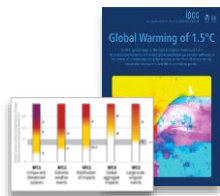


Context to science-based targets

- **Global temperatures have risen by more than 1°C** since pre-industrial times.
- **Paris Climate Agreement** approved by 197 nations at COP21 came into force on 4th November 2016.
- Agreed to hold the increase in global average temperatures **well below 2°C** and pursue efforts to limit the increase to **1.5°C**.
- Emissions should peak as soon as possible, and rapidly reduce thereafter.



Global commitments are accelerating the adoption of ambitious objectives to tackle climate change



2018: Intergovernmental Panel on Climate Change (IPCC) report showed that we need to align to a 1.5°C trajectory. **The world needs to reach Net Zero** CO₂ emissions (emissions balanced with removals) by **2050**.



June 2021: G7 reconfirmed their commitment to limiting warming to **1.5°C**.



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21-CMP11

The **Paris Agreement** with a goal to limit global warming to **well below 2°C** and to pursue efforts to **limit to 1.5°C**

May 2021: EU climate law – **Net Zero emissions are now a binding target** for 2050.

#EU2050

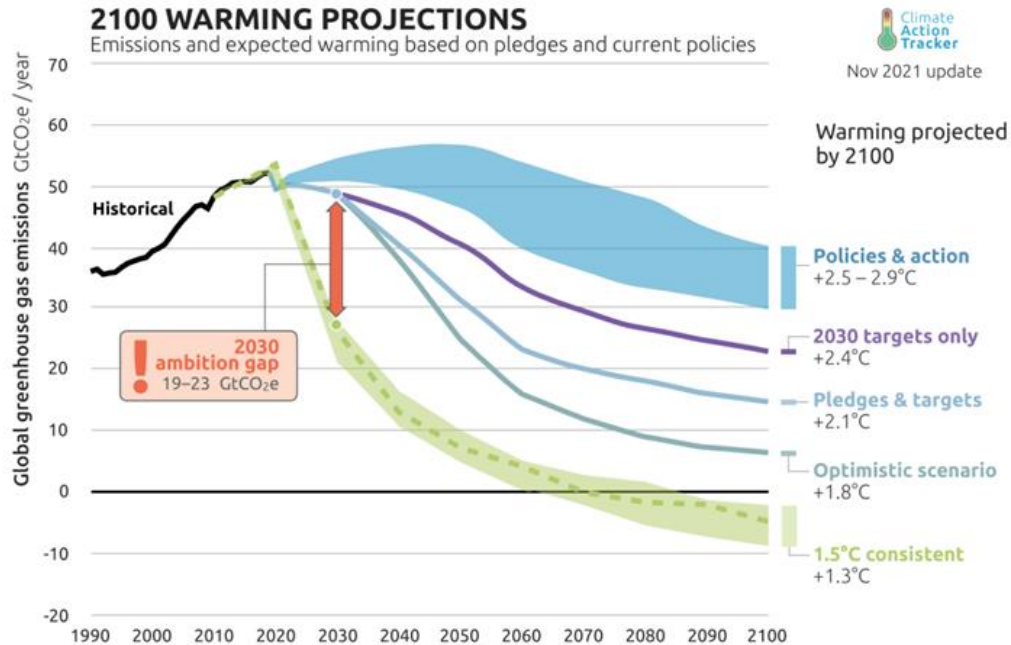


UN CLIMATE CHANGE CONFERENCE UK 2021

IN PARTNERSHIP WITH ITALY

However, under current policies we are heading towards a 2.7C temperature increase

Transition risks will depend on the level of decarbonisation and our preparedness to adapt to a low-carbon economy



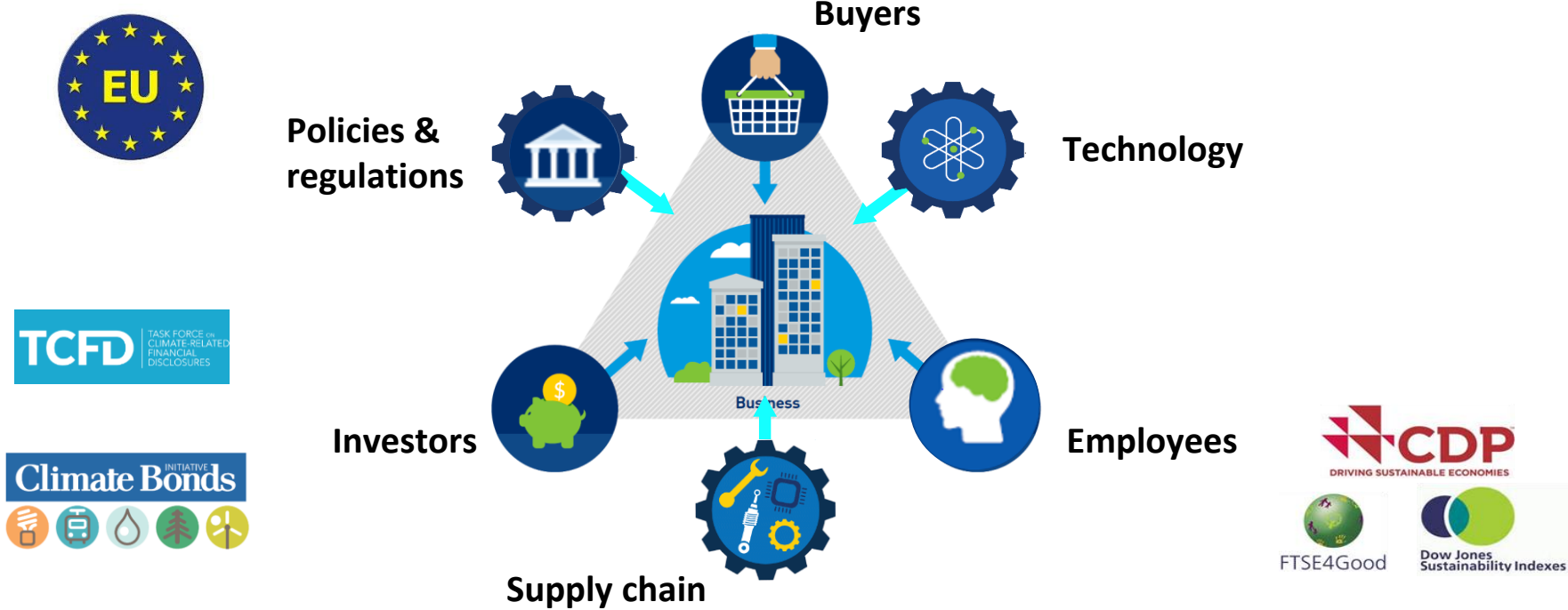
As we strive to reach the Paris Agreement's goal of 1.5°C temperature increase, we can only **mitigate growing exposure to transition risks through early action and an orderly decarbonisation.**

The difference between global warming of 1.5°C and 2°C is vast

A 1.5°C world is one that is more economically stable, in which supply chains are less susceptible to flood and extreme weather risks; workforces are less exposed to extreme heat, water scarcity and food shortages; and company operations are less at risk from dramatic changes to water supplies.

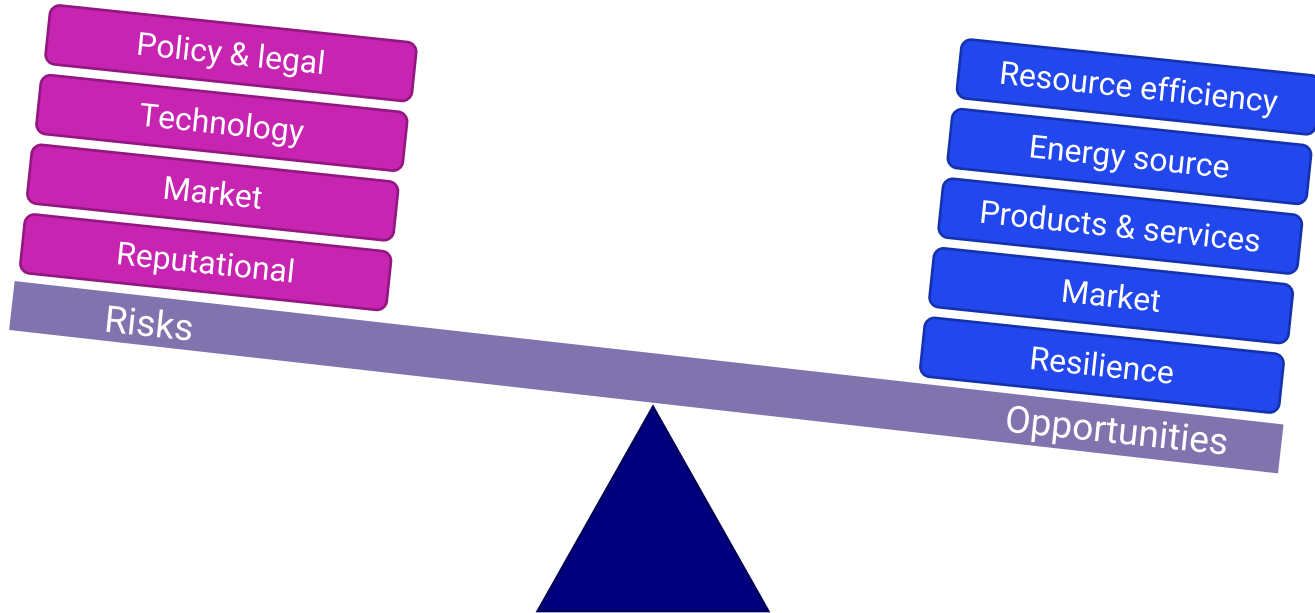
	1.5°C	2.0°C	2°C
 Global population exposed to severe heat at least once every 5 years	14%	37%	<u>2.6x</u> worse
 Number of ice-free arctic summers	At least 1 every 100 years	At least 1 every 10 years	<u>10x</u> worse
 Further decline in coral reefs	70-90%	99%	Up to <u>29%</u> worse
 Decline in marine fisheries	1.5M tonnes	3M tonnes	<u>2x</u> worse

Drivers for action towards a Net Zero transition are strong and growing



Is it just about risks?

Those than can adapt and implement early action will benefit from the opportunities of a just transition to a net-zero world



A photograph of high-voltage power lines and pylons against a clear blue sky. The lines are silhouetted against the bright background, creating a complex geometric pattern of intersecting lines and towers.

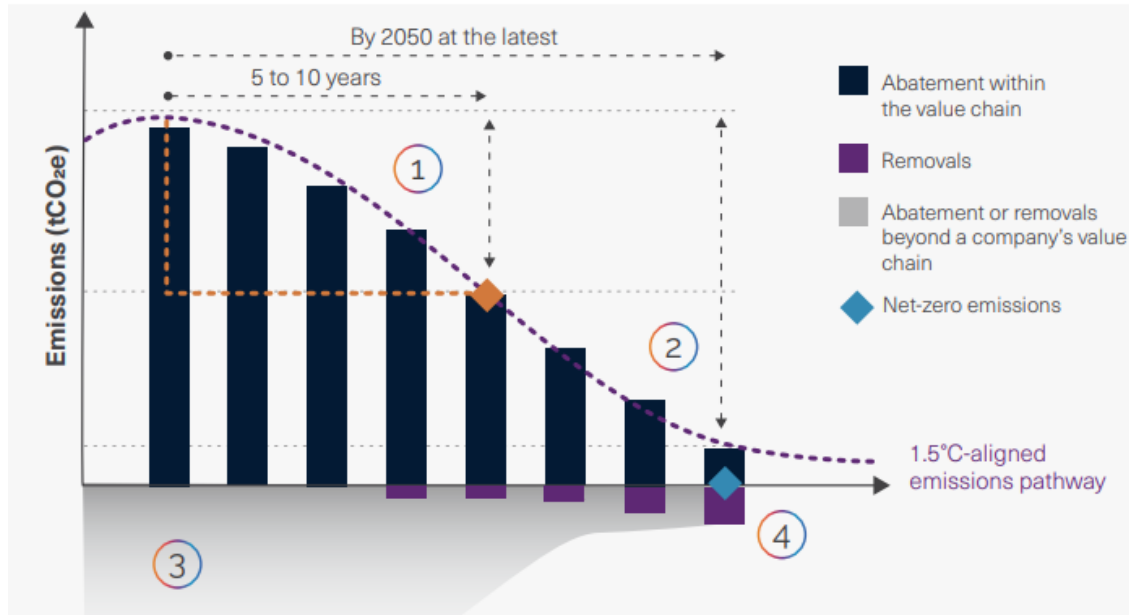
The road to Net Zero: Science-based and long-term targets

The Science Based Targets Initiative (SBTi) has translated the global goals into decarbonisation pathways for companies



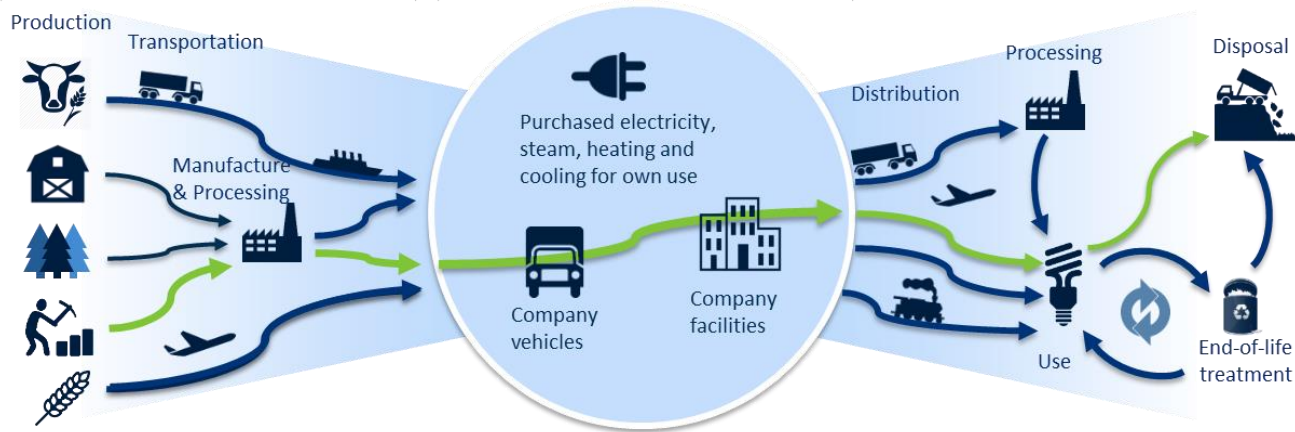
- Majority of all science-based targets validated by the SBTi in 2021 have been **1.5C-aligned for Scope 1&2** (the most ambitious pathway for reduction).
- Growing number of companies have now committed to **achieving net-zero emissions by 2050**.

The SBTi describes the end goal of Net Zero and the journey towards achievement



1. Near-term science-based target
2. Long-term science-based target
3. Beyond value-chain mitigation
4. Neutralisation

Companies need to address both their Scope 1&2 emissions (own operations) as well as Scope 3 emissions (value chain)



Scope 3 (Upstream)
Supply chain

Own operations
Scope 1 & 2

Scope 3 (Downstream)
Distribution, use and disposal of sold products

What does Net Zero mean for the Power Sector?

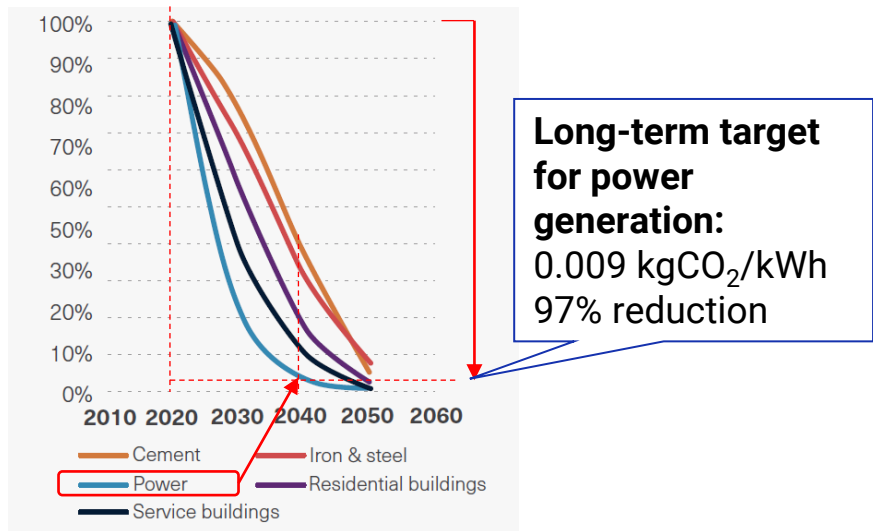
Why is setting a net zero target in the utilities/energy sector important?



- Net zero includes all scope 1, 2 and 3 emissions to be accounted when setting reduction and neutralisation targets.
- The world has a viable pathway to building a global energy sector with net-zero emissions in 2050, but it is narrow and requires an unprecedented transformation of how energy is produced, transported and used globally (IEA 2021)

SBTi Net-Zero Standard for power companies

Sector-specific intensity pathways



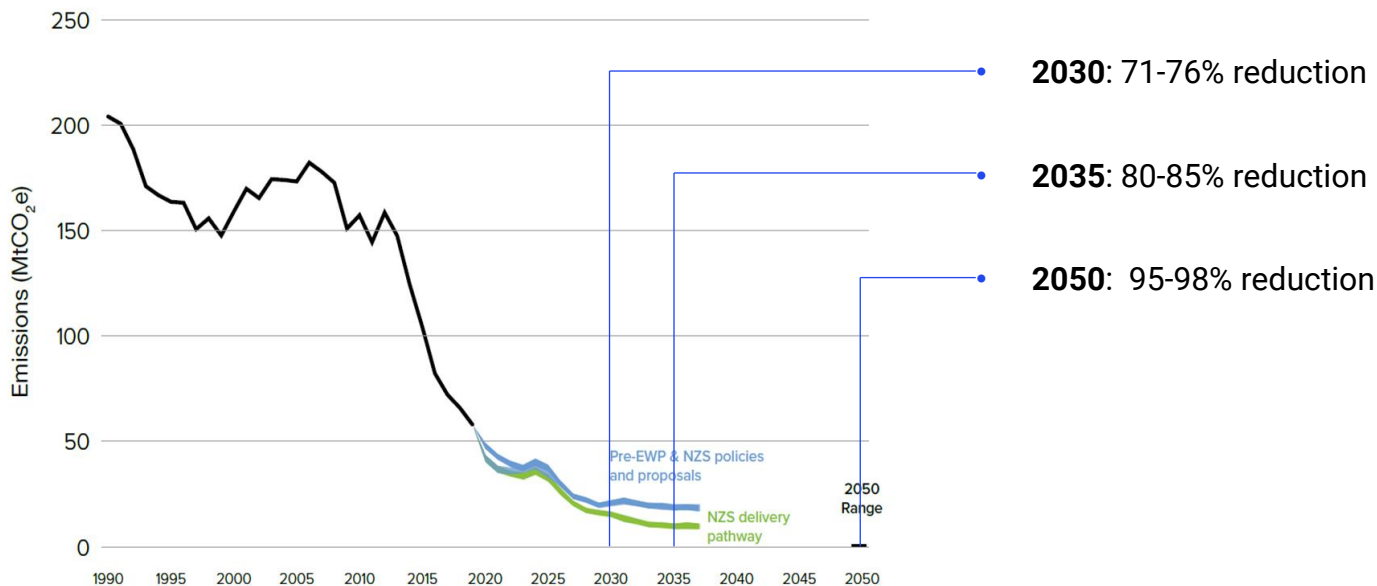
Net-Zero Standard for long-term targets for power companies:

- Must achieve **Net Zero by 2040** and use the intensity convergence method (SDA).
- If scope 3 emissions $\geq 40\%$ of total: companies **must set an intensity target covering all sold electricity** (including purchased and resold electricity in scope 3 category 3).

UK Power sector emissions trajectory to 2037

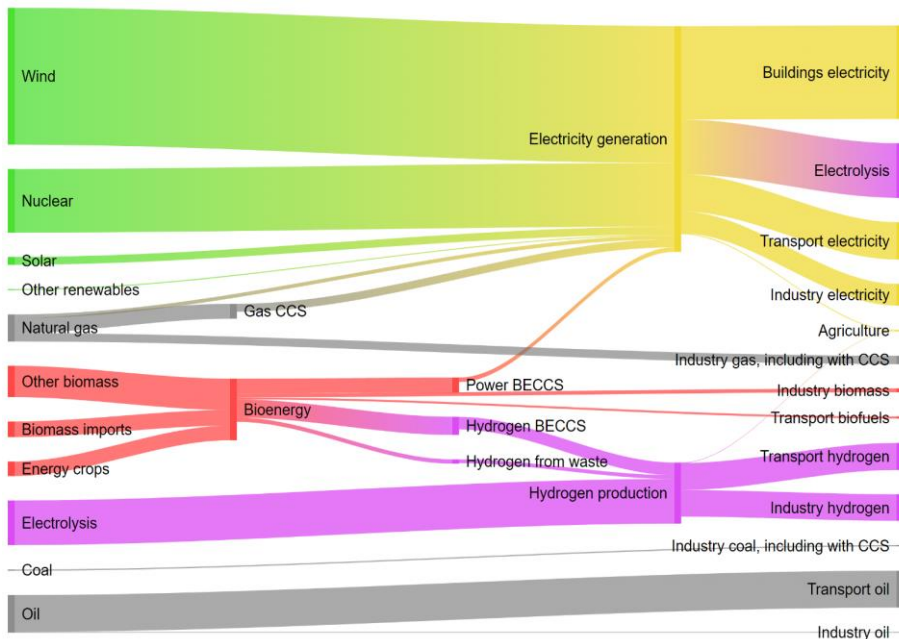
Indicative power emissions pathway to 2037 in the UK Net Zero Strategy

Key emission reduction milestones (vs. 2019 base year)⁽¹⁾



By 2050, the economy will need to be powered by zero-carbon electricity and hydrogen; residual fossil fuel usage will be minor

UK energy generation and end uses in 2050 (High electrification scenario)



Net Zero Strategy Commitments to deliver a decarbonised power system by 2035 (selected)

- By 2035, **all electricity will come from low carbon sources** (mainly wind and solar).
- Maximise system flexibility through delivering **smart and digitalised energy system**.
- Create a whole energy system governance to achieve both Net Zero and consumer needs (e.g. proposal for 'Future Systems Operator' with responsibilities across both electricity and gas systems).

The role and value of smart technologies in a 2050 net zero system



Investing in flexibility is a no-regrets decision as it delivers material net savings of up to £16.7bn/year in 2050



A portfolio of flexibility across the energy system manages uncertainties and reduces costs



Embedding flexibility in zero carbon heat & transport solutions will help to reduce their system impact & costs



Demand side flexibility, enabled by smart technologies, reduce system costs by up to £4.6bn/yr in 2050

A blue-tinted photograph of high-voltage power lines and pylons stretching across the sky. The pylons are steel lattice structures, and the lines are multiple parallel cables. The background is a clear, deep blue sky.

Key elements of a transition plan

Net Zero targets still bring a lot of uncertainties and questions



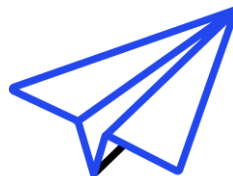
Robustness of the target

How do I ensure that the level of ambition, baseline, boundaries, offsetting and removals strategies are appropriate?



Validation of achieved reduction over time

How can I verify the progress achieved over time, to make sure I will meet my objectives?



Feasibility of the implementation plan

Do I have the correct financial and operational planning to achieve my targets?

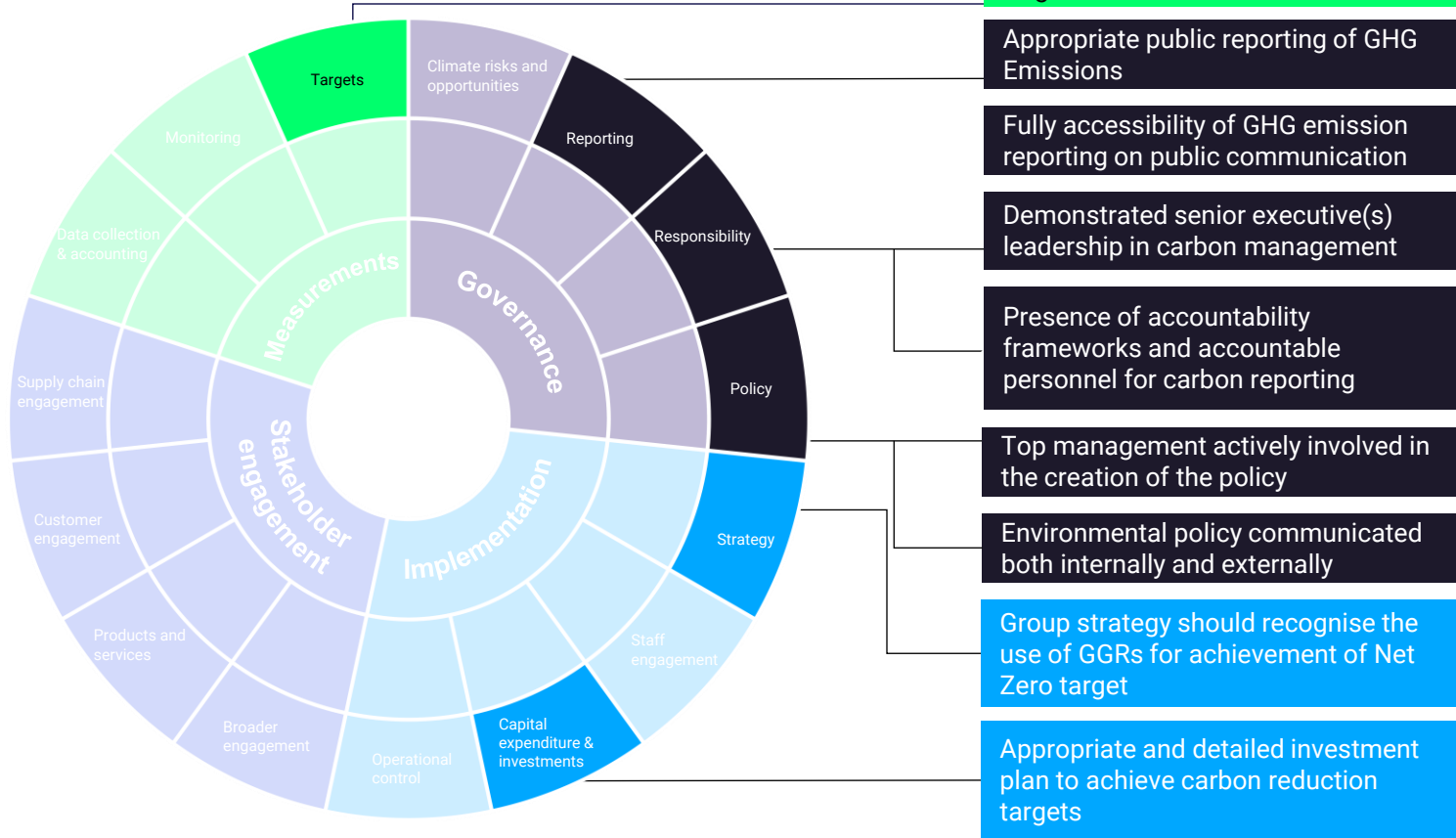


Tracking and communication

How can I communicate internally and to the wider public the progress on my ambition?

What does leadership look like?





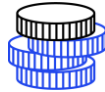
Conducting a transition risk assessment



Identify

1. Define business context

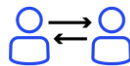
2. Identify transition risks based on your business strategy, sectoral developments, and climate science & policy



Analyse

4. Detailed assessment of the most material risks

3. Assess the external drivers of and internal exposures to risk



Mitigate

5. Integrate findings with board level business planning and strategy

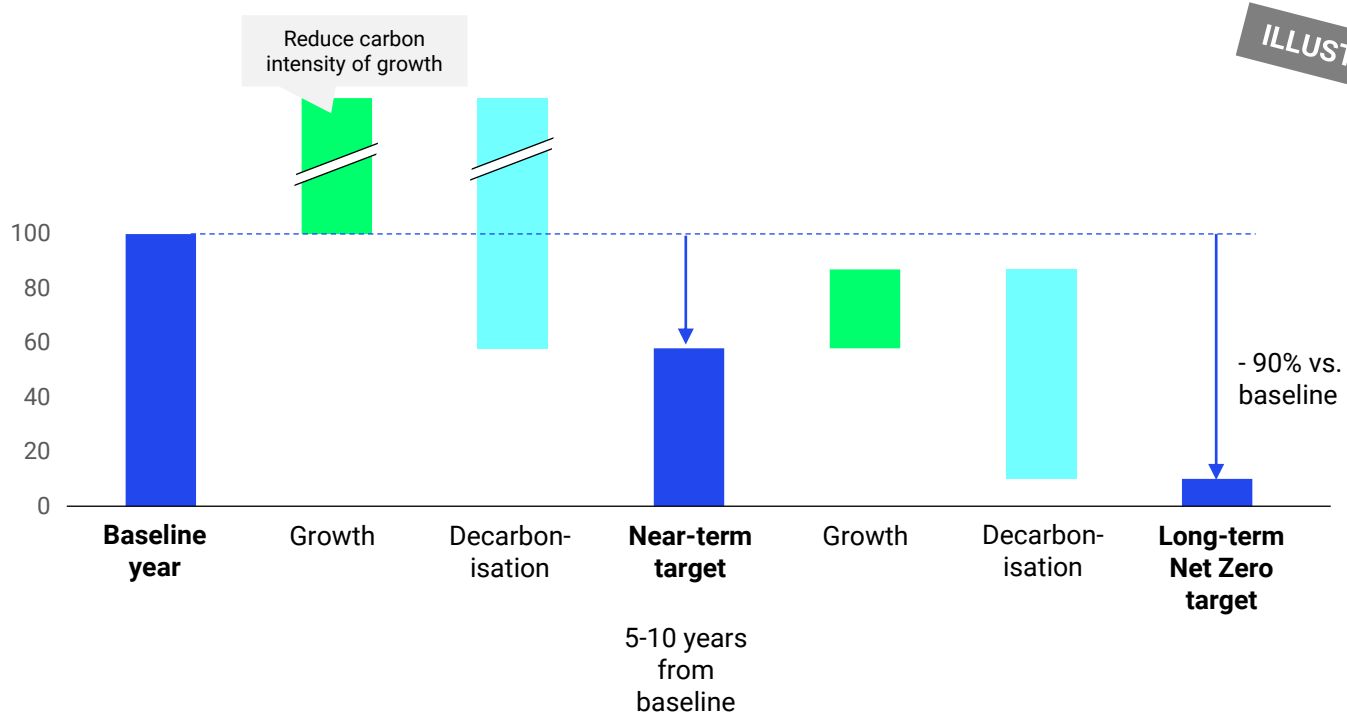
6. Develop metrics & targets for material transition risks

Companies need to forward plan investments and actions

Illustrative decarbonisation pathway

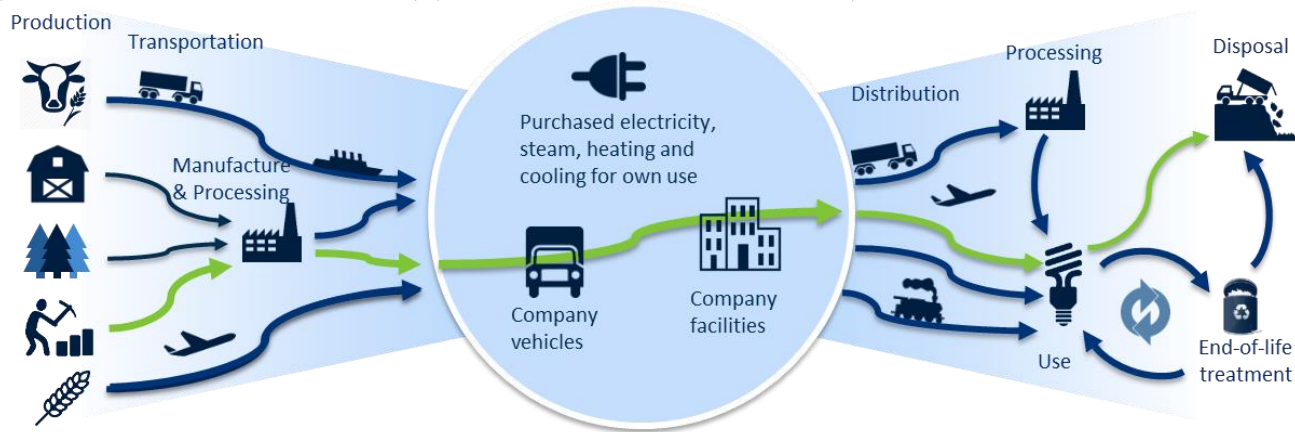
Carbon emissions

- Scope 1&2
- Scope 3



ILLUSTRATIVE

Focus: Scope 3 decarbonisation

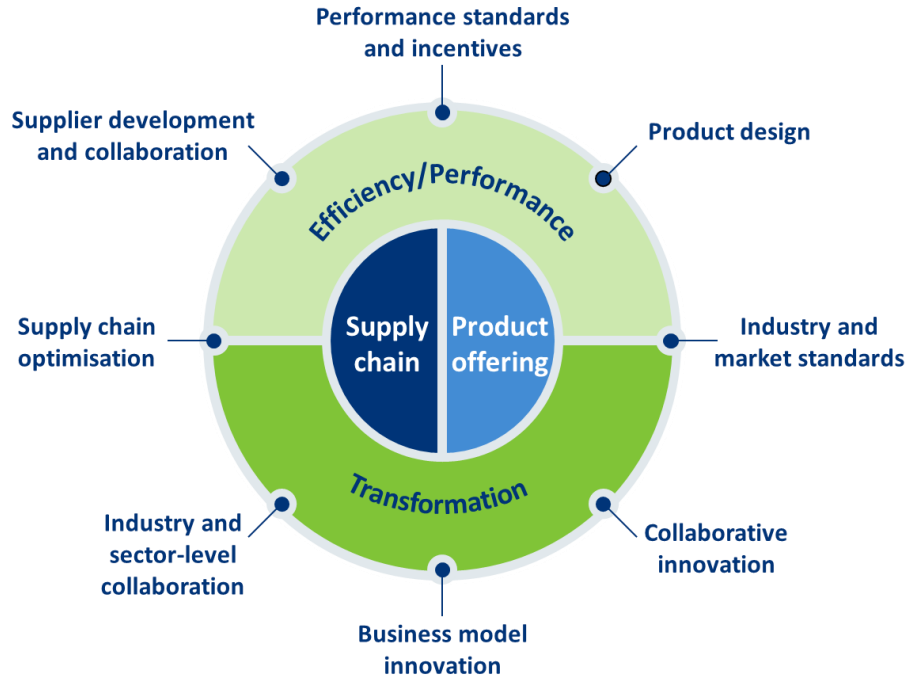


Scope 3 (Upstream)
Supply chain

Own operations
Scope 1 & 2

Scope 3 (Downstream)
Distribution, use and disposal of sold products

Key levers for decarbonising Scope 3 emissions



Purchased goods and services

- Product design
- Circular products and business models



Upstream transport and distribution

- Supply chain optimisation
- Collaboration



Use of sold products

- More energy efficient products in-use
- End-user behaviour
- Circular products and business models



Downstream transport and distribution

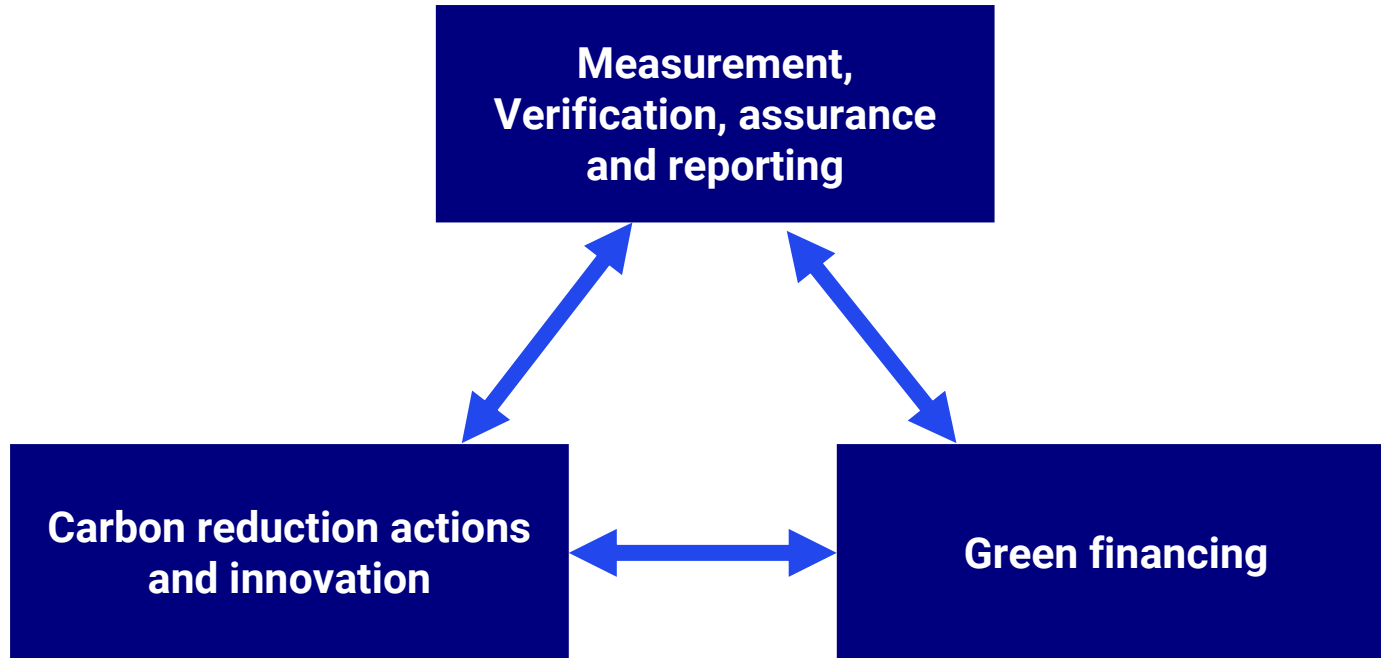
- Logistics optimisation



End of life treatment

- Recycling
- Circular economy / regenerative resource use
- Landfill vs waste-to-energy

To drive change at scale, three key aspects will need to work in synergy



Key insights and learnings from over 150 SBT projects delivered



Companies face similar challenges...

Receiving buy-in from across the business

Understanding evolving SBTi requirements

Measuring value chain emissions

Value chain target-setting

How to achieve the target

Getting the target approved

...but there are ways to address these

Early and continuous engagement with key stakeholders

Good data collection processes that improve with time

Clear business case and long-term investment plan

External support to ensure best practice



Thanks for listening

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ENA SHE conference 2022

How we are innovating to
achieve Net Zero

Ian Cameron & Shira Lappin



Our corporate Vision is evolving

An
employer of
choice

A respected
and trusted
corporate
citizen

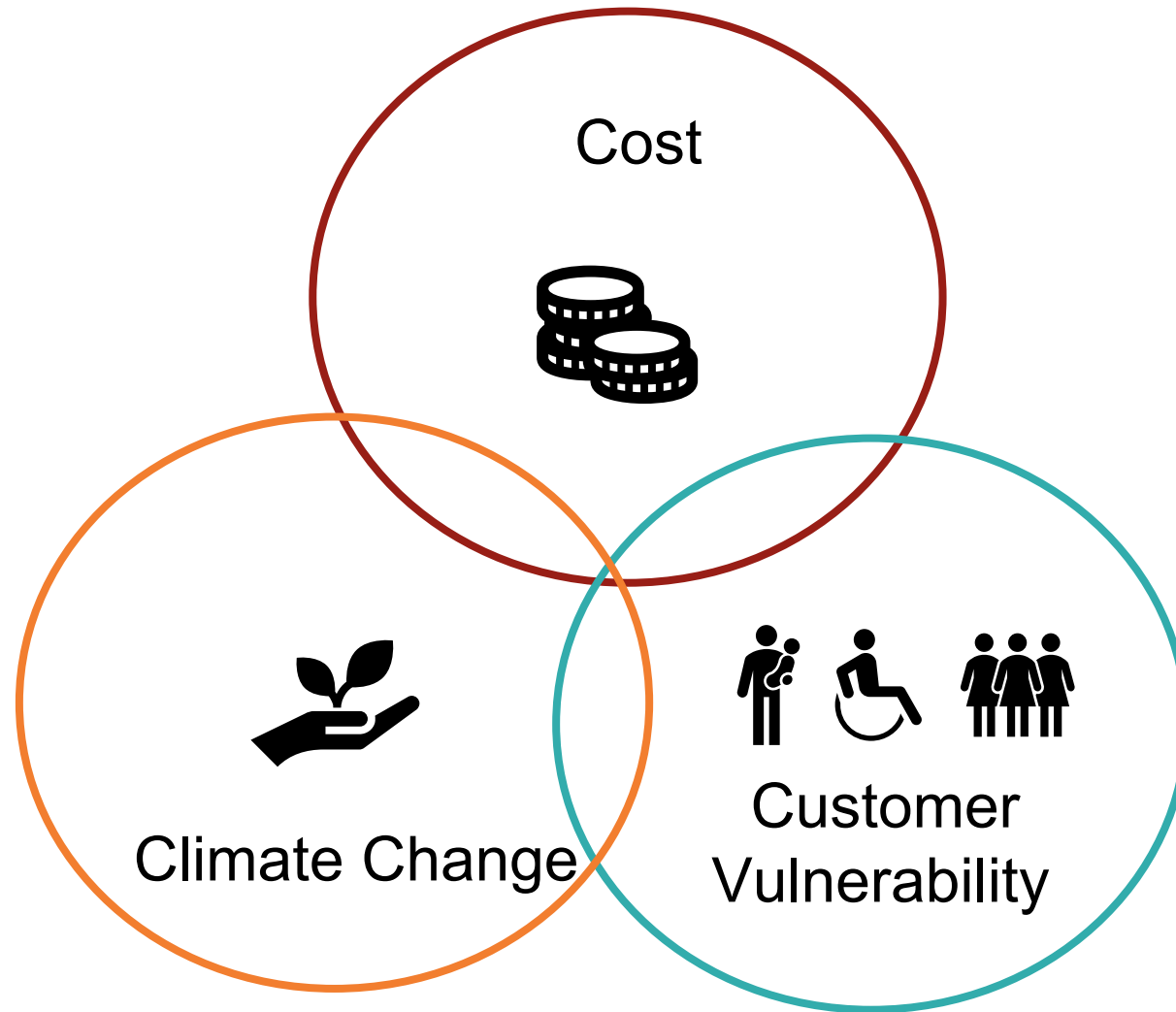
Sustainably
cost
efficient

Enabling the
Net Zero
transition
for all

Enabling Net Zero has two key components:

1. **Achieving** Net Zero as a business through our own operations and supply chain
2. **Facilitating** Net Zero through our network by accelerating the decarbonisation of electricity, transport and heat.

Our Customers' Top 3 Priorities



Our key areas of innovation are where these priorities overlap

Enabling the Net Zero Transition for All



Decarbonising Electricity

9.4GW of Distributed generation connected, **7.3GW** renewable

10GW DG accepted, not yet connected

370MW of storage connected, **3 GW** accepted and yet to connect

By 2030 Generation to reach **13.5GW+**

Decarbonising Transport

230k Plug-in vehicles charging off our network today, volumes multiplying annually

Forecasting **2.6 - 4.5m** EVs by 2030

18,500 Public charge points, **38%** of the country

Decarbonising Heat

28,000 heat pumps connected to our networks today

2025 Future homes standard will drive volumes of heat pumps, by 2028 gov expect 800,000 a year nationally

By 2030 we expect **712,000 - 1.2m** to connect to our network

Inclusive by Design

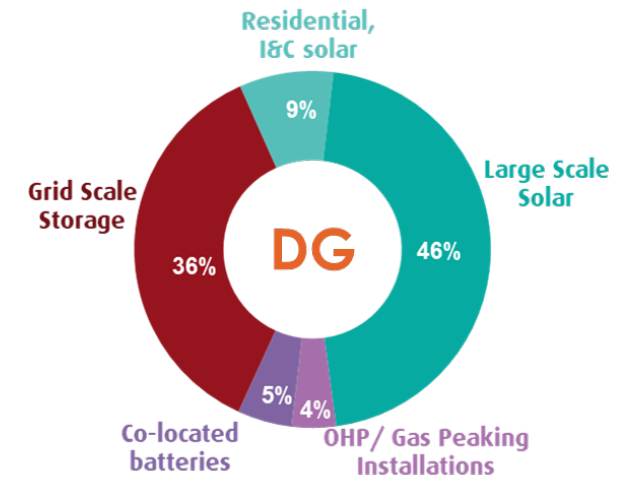
Innovating to Decarbonise Electricity

POCmast

Provides an additional cost effective option for customers wishing to connect to the network and avoid the costly and time consuming option of complete tower replacement.

Includes a base hinge to enable construction work to be done at ground level before erecting the mast.

Cost around £60k to design and the first trial saved a solar farm connected £500k



Smarter Network Storage- 6MW/ 10MWh



Delivering multiple system services through different contracting mechanisms

Tested and published analysis on different business models and value of available services

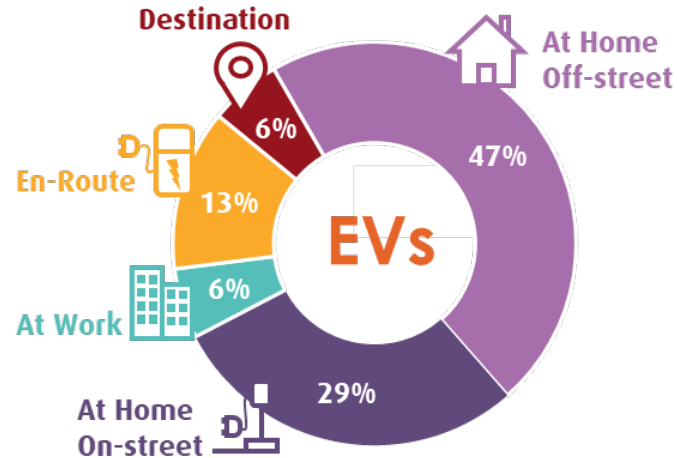
Provided Government, Ofgem and the industry insight to the regulatory and commercial barriers of storage

Shared experience of building, operating and selling grid scale storage



Innovating to Decarbonise Transport

Voyage (NIA)



V2G (IUK/ NIA)

Large V2G mass trials with 135 customers participating

Produced a low weight small V2G charger- reducing the cost of a V2G charger by over 50%

Developed a self-service product for domestic customers seeking an electricity supply upgrade to connect an LCT. 76% of these applications are processed automatically, reducing lead times from 10 days to a matter of minutes.



Optimise Prime NIC

"World's biggest commercial EV trial" targeting 3,000 commercial vehicles



The world's largest dataset on commercial EV usage and charging

A solution for home charging of commercial EVs, with separate billing & flex aggregation

A suite of tools, e.g. depot planning model, allowing an easier switch to EV

Profiled Connection' enabling more efficient use of network capacity

£207m

through optimised connection cost and deferred reinforcement

2.7m tonnes of CO₂

= entire London bus fleet running for 4 years

centrica

UK Power Networks

HITACHI Inspire the Next

Royal Mail

Scottish & Southern Electricity Networks

Uber

Innovating to Decarbonise Heat

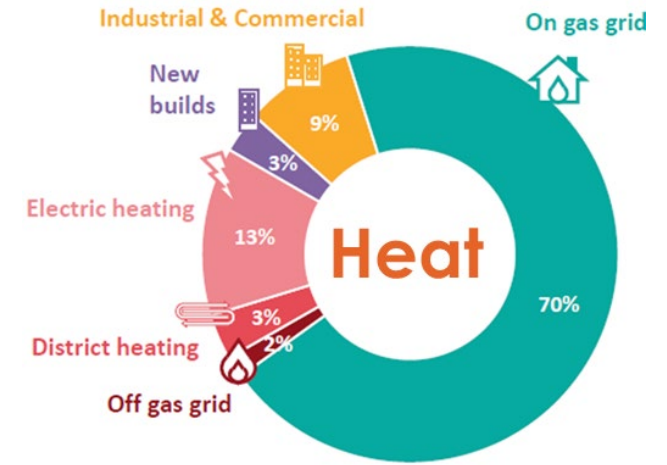
HyCompact (NIA)



Hybrid heat pumps reduce space requirements by **50%** and can be installed in a **third of the time** compared to dual-unit hybrids

43% reduction in carbon emissions due to switching to a hybrid heat pump and increased heating system efficiencies

Heat pump only operation is perfectly viable in milder conditions, in colder weather, boiler utilisation increases and COP falls, but good carbon savings are still achieved



CommuniHeat (NIA)

Community Engagement



Community Finance Models

BURO HAPPOLD

System Studies Coordinated / Uncoordinated

BURO HAPPOLD

Trial Design

Book on Decarbonising Off-Gas Grid



- Community renewables deliver 37% of total electricity demand
- Modelling indicates up to 75% saving in network reinforcement costs
- Increased building retrofits
- 20% energy saving

Developing a Culture of Innovation to Achieve Net Zero

Diversify the innovation funding streams

Put more financial skin in the game, win more innovation funding and leverage existing regulatory funding to participate in wider innovation initiatives

Focus on problems which deliver value

Treat innovation as a business, do what matters to our customers and stakeholders

Maximise Collaboration

Aim to undertake approximately 50% of projects in collaboration with other Licensed Network Operators (LNOs)

Being transparent on the benefits delivered

Transparently report on the lessons learnt, there is no negative innovation learning!

Taking on a greater social role

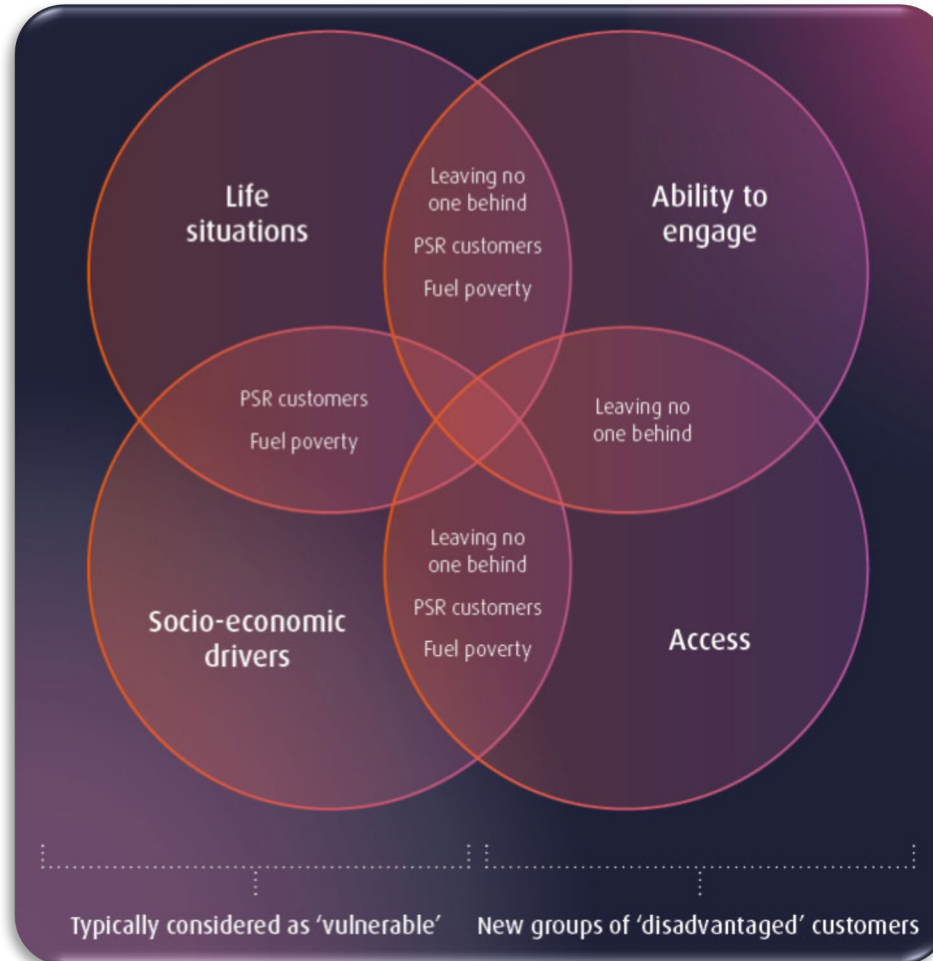
Focus the innovation approach to new themes which deliver Social Return On Investment, not simply network benefits – focus on Net Zero and customer vulnerability

Ensures innovation and sustainability as BAU, bringing everyone on the journey to guarantee buy-in and deliver success

Essential for achieving our corporate goal of enabling the Net Zero transition for all, both achieving and facilitating

Vulnerability is Evolving...

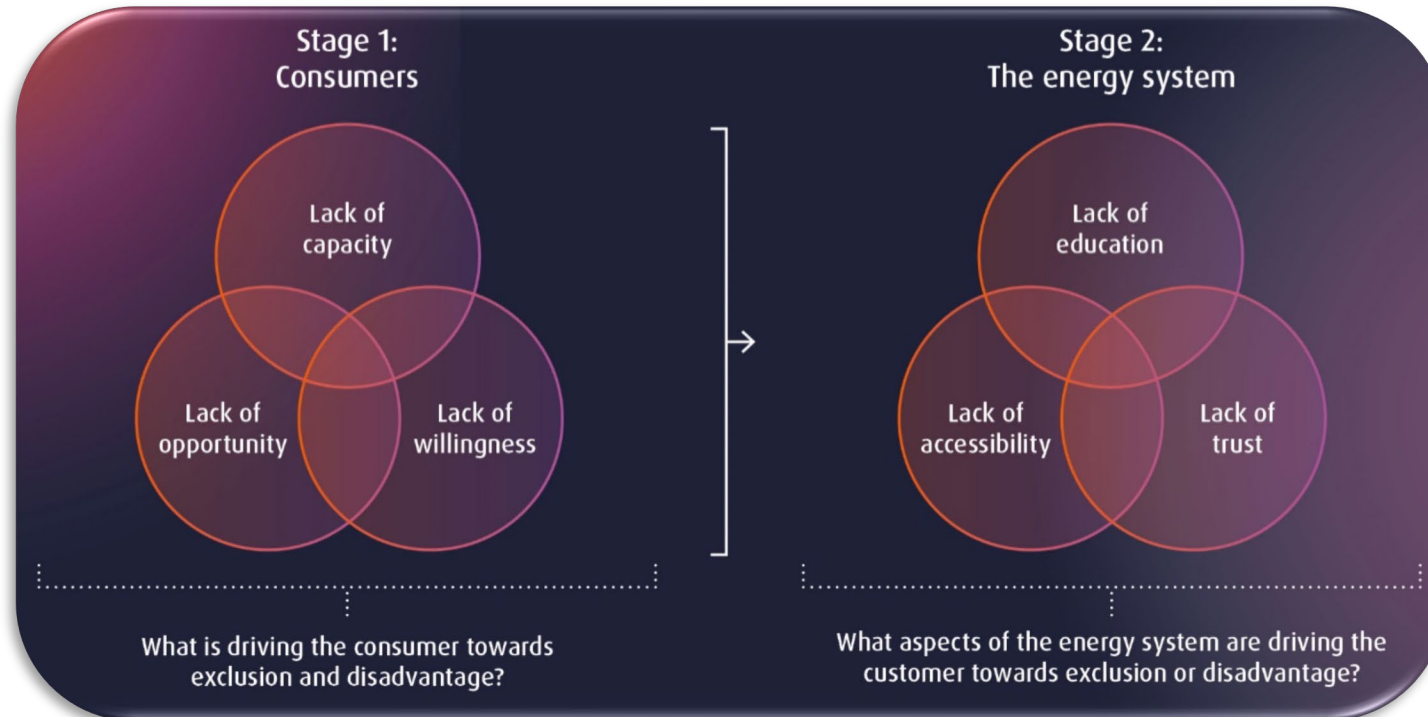
As the energy sector evolves towards a decarbonised, decentralised and digitalised system, our customers are experiencing new barriers in engaging with the energy market and energy solutions, leaving them at risk of being disadvantaged.



...which barriers can drive customers towards exclusion or disadvantage in the changing energy system?

To better understand which barriers can drive customers towards exclusion or disadvantage in the evolving energy system we have developed a two stage exclusion segmentation framework, focusing on **which barriers in the energy systems we can break to ensure inclusive services and a just energy transition**, as well as on the personal circumstances that may put people at risk of being left behind

Our two stage exclusion segmentation framework

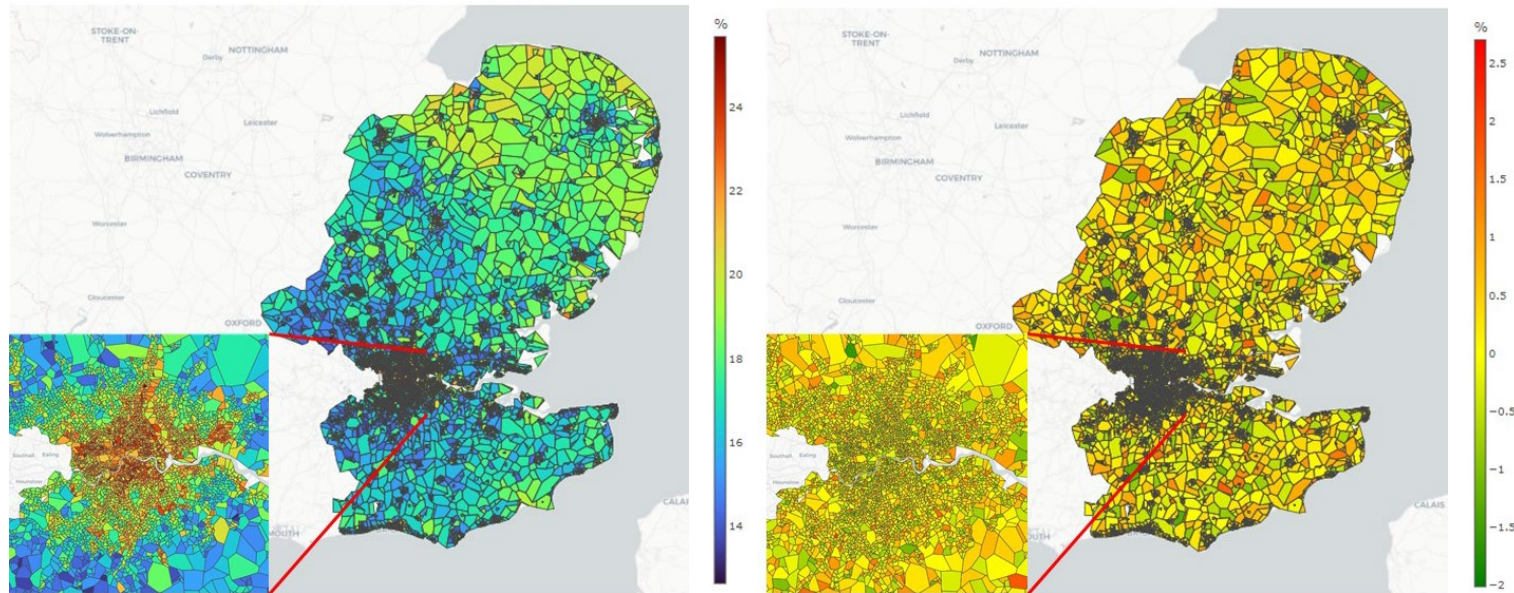


Socially Green

Better understanding customer vulnerability, driven by multiple data sets

Our Socially Green geospatial mapping and forecasting tool currently embeds:

- **43 vulnerability data sets** from a range of data sources (e.g. ONS, Experian, Census 2011, Gov UK, Ofgem, FCA, CSE)
- These indicators define a series of **circumstances that are likely to result in vulnerability, disadvantage and exclusion** now and in the future: 17 Themes (longer term) and 10 Events (shorter term or temporary)
- By combining this data we have mapped out **10 segments of exclusion**



Example: “Lack of opportunity to participate in the energy sector” level in 2020 and difference in accessibility between 2020 and 2030

1.58m

households at risk of being left behind by 2030 in the energy system across our areas on average per segment of exclusion

Enable

Helping disabled drivers who park on street switch to electric vehicles

Objectives: To understand the barriers facing disabled customers in the switch to EVs, the role of the DNO in supporting these customers and to assess the impact on the network.

We:

- Surveyed over 1,000 disabled motorists
- Interviewed 20 local authorities, central government and five charge point operators
- Market sizing of disabled customers in the UK Power Networks licence area.
- Network impact assessment of the electrification of on-street disabled parking

Key barriers relating to the accessibility of on-street charge points for disabled users fall into 4 main categories:

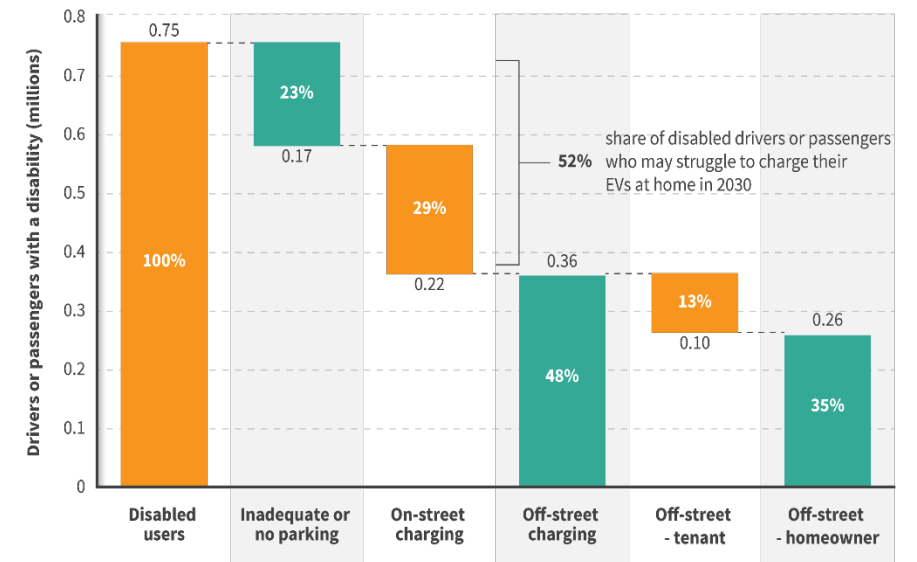
Variety of users

Built environment, infrastructural

Suitability of charge points

Informational

745,000 Blue Badge holders in the UK Power Networks licence area by 2030:



Project partner:



Right to Heat

Trialling low carbon heating interventions in social housing

Objective: to develop and demonstrate a template for best practice for decarbonising heating in urban social housing settings by unlocking the commercial value of LCTs for consumers.

We are:

- Trialling low carbon interventions: hybrid system (heat pump working alongside a traditional boiler) coupled with solar PV and energy storage and smart market mechanism
- Gathering feedback on consumer impact and evaluating the impact on customers in vulnerable situations and fuel poverty
- Providing the customers with longer term energy advice and coaching

Benefits to Customers

1. Achieve lower consumer bills
2. Reduce tenants' carbon footprint
3. Improve wellbeing and health of customers by ensuring homes are kept warm

Project partners:



Thank you

<https://innovation.ukpowernetworks.co.uk/>



Thank you

See you in Dublin for SHE Management Conference 2023

The logo for the SHE Management Conference is a teal square containing the word 'she' in a large, white, lowercase sans-serif font. Below 'she', the words 'safety, health & environment management conference' are written in a smaller, white, lowercase sans-serif font, stacked in three lines.

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conference

29-30 June 2022 Brighton

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