ZERO CARBON OXFORD

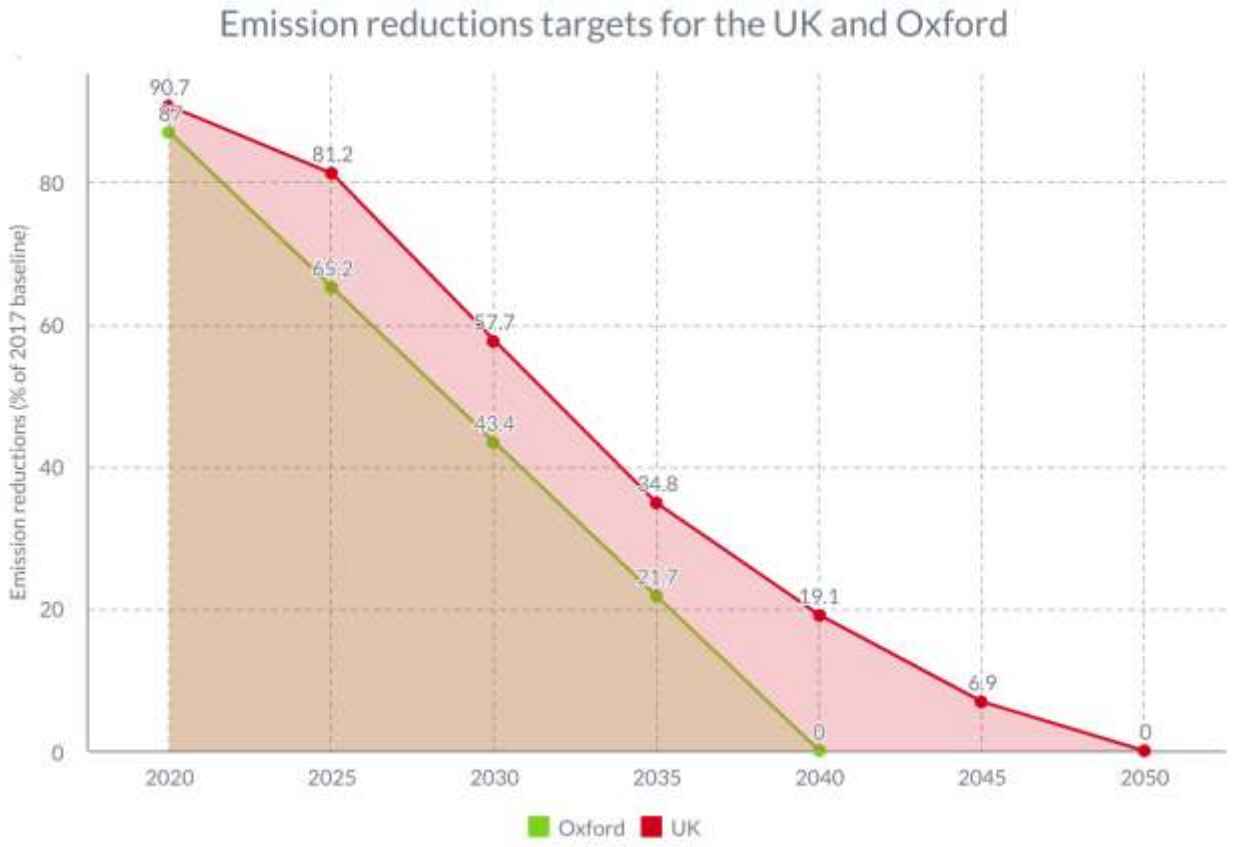
Zero Carbon Oxford Summit

04.02.2021

Nick Eyre

Professor of Energy and Climate Policy at the Environmental Change Institute, Scientific Adviser to Oxford City Council

How does a 2040 target compare to UK goals?



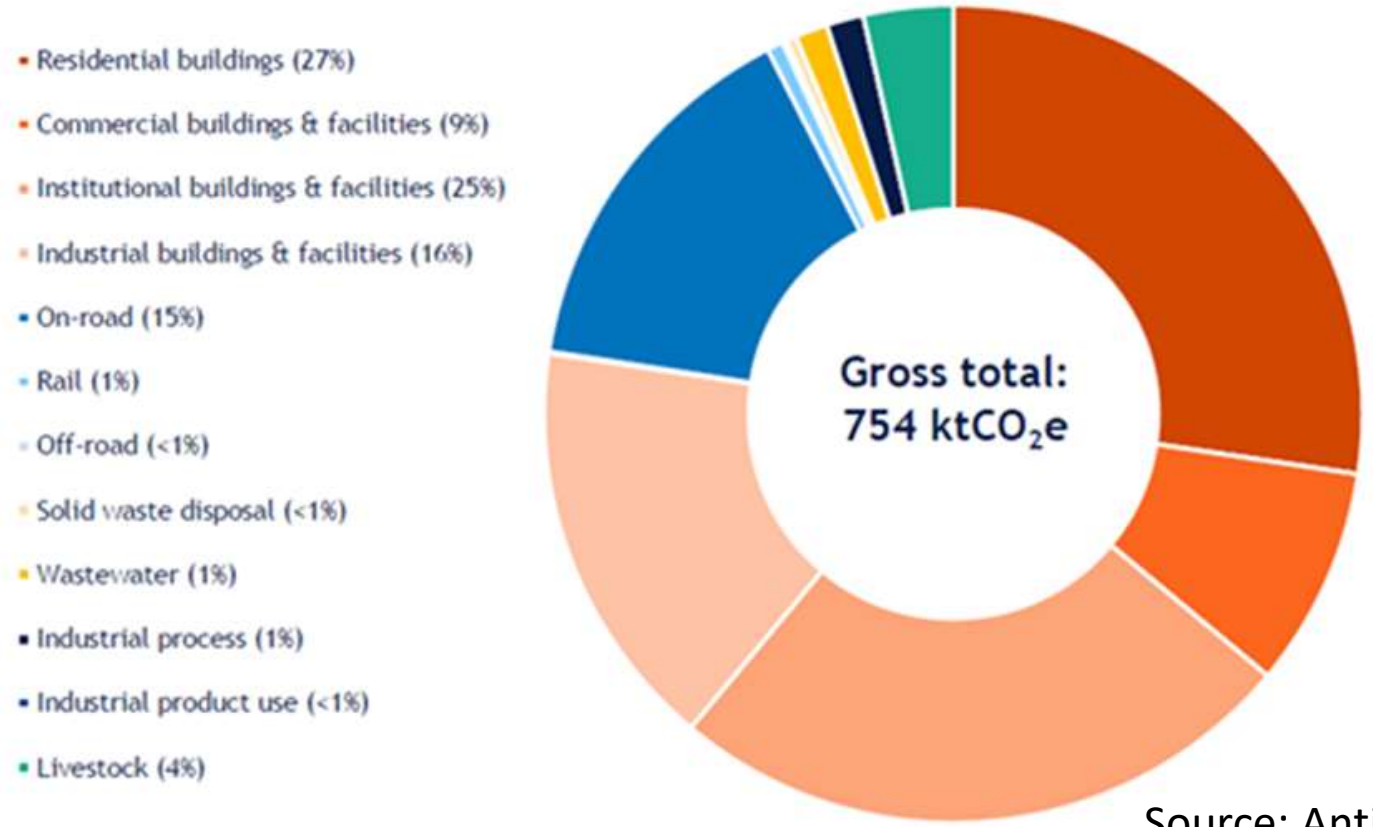
Oxford's proposed targets compared to national targets:

- have greater early reductions,
- then follow a similar shape,
- reach net zero 10 years earlier.

Where does Oxford most need to make progress?

Key emissions sectors:

- Homes
- Institutional buildings
- Industrial buildings
- Road transport



Source: Antithesis

How difficult is decarbonisation in different sectors?

Sectors for which decarbonisation is difficult and projected to be slow are:

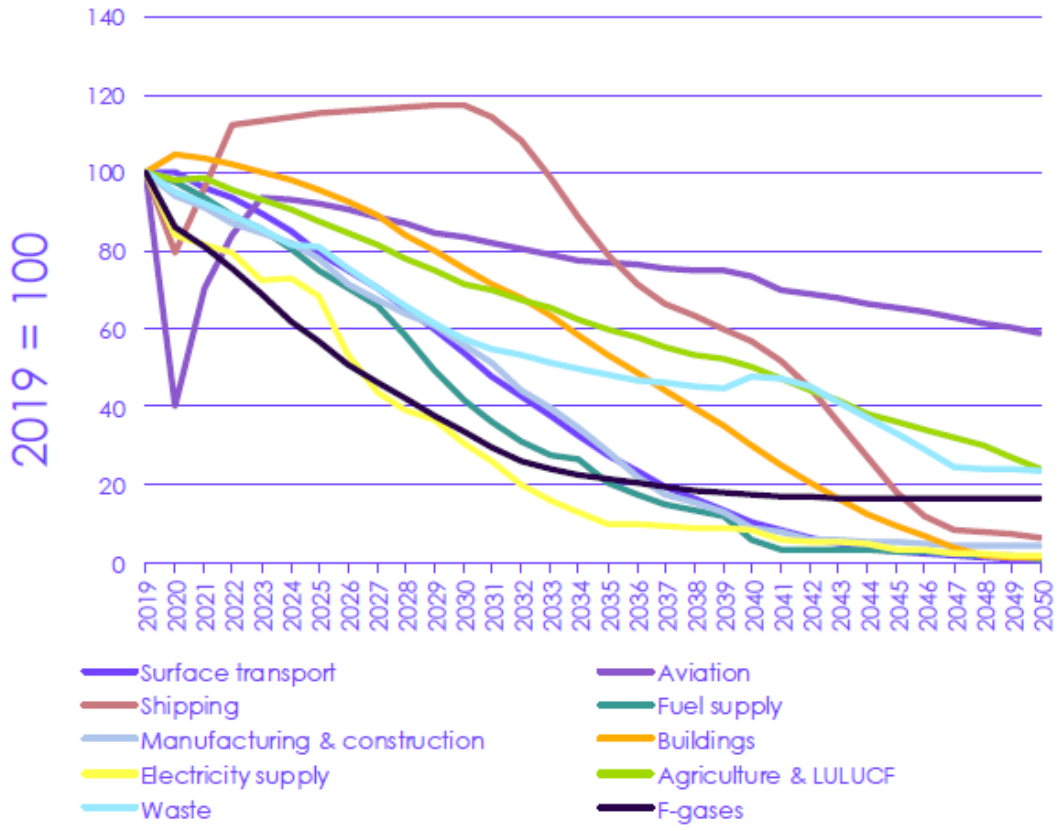
- Aviation and shipping
- Heavy road freight
- Some industrial processes (e.g. primary steelmaking, cement)
- Agriculture

Sectors in which progress by 2040 is easier:

- Electricity supply
- Surface transport
- Buildings

Oxford's emissions are strongly weighted towards sectors which are less difficult to decarbonise.

Figure 2.5 Change in sectoral emissions in the balanced Net Zero pathway compared to 2019 levels



Source: CCC analysis.

Notes: Aviation and shipping pathways are lower in 2020 due to COVID-19. LULUCF = Land-use, land-use change and forestry.

Conclusions

- Oxford can decarbonise more easily than the UK as a whole
- An earlier net-zero target than 2050 is therefore appropriate.
- Decarbonising Oxford will rely on progress elsewhere, especially for decarbonisation of electricity and availability of hydrogen.
- Exact targets are a question for political priorities and judgement.
- 2040 would be an ambitious target, but technically feasible.
- It would require Oxford to move more quickly than the national average on reducing energy use in buildings and transport.
- Uncertainties about 2040-2050 are very high, and therefore periodic reviews of later targets would be sensible.

University of Oxford

Professor Louise Richardson

Vice Chancellor

Oxfordshire County Council

Cllr Yvonne Constance

Cabinet Member for Environment

2020 Climate Action Framework

Oxfordshire County Council: Climate Action

Carbon Neutral by 2030
for own estate and operations

Focus:

- Better design
- Energy efficiency
- Alternate fuels
- Generation

Drive the transition to a Zero Carbon Oxfordshire

Focus:

- Local Transport and Connectivity Plan
- Reducing the impact of waste
- Support communities to act
- Play our role in delivering low carbon development and supporting natural carbon management.
- Working with our suppliers
- Play our role in supporting retrofit

Zero Carbon Oxford partnership

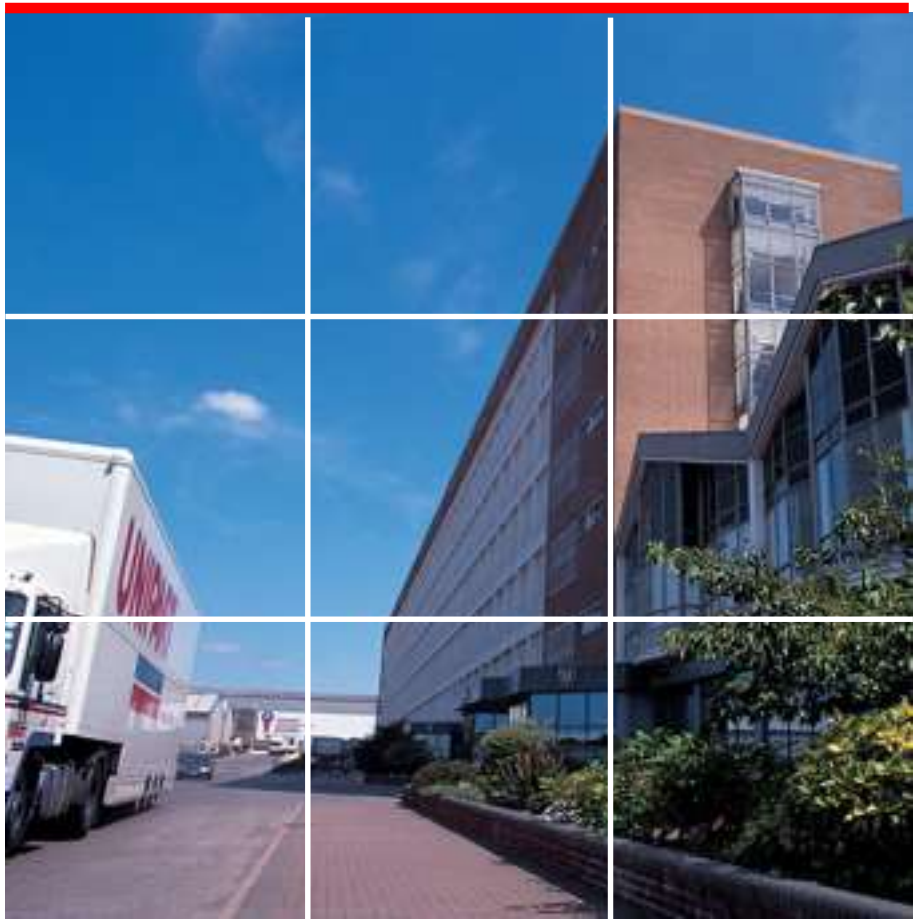
- **Share and learn from best practice**
- **Build on existing partnerships to develop and deliver our transport vision for Oxford**
- **Provide a conduit for issues that span the City boundaries**

Unipart

Joel Magande

Group Environment Manager

The Unipart Group



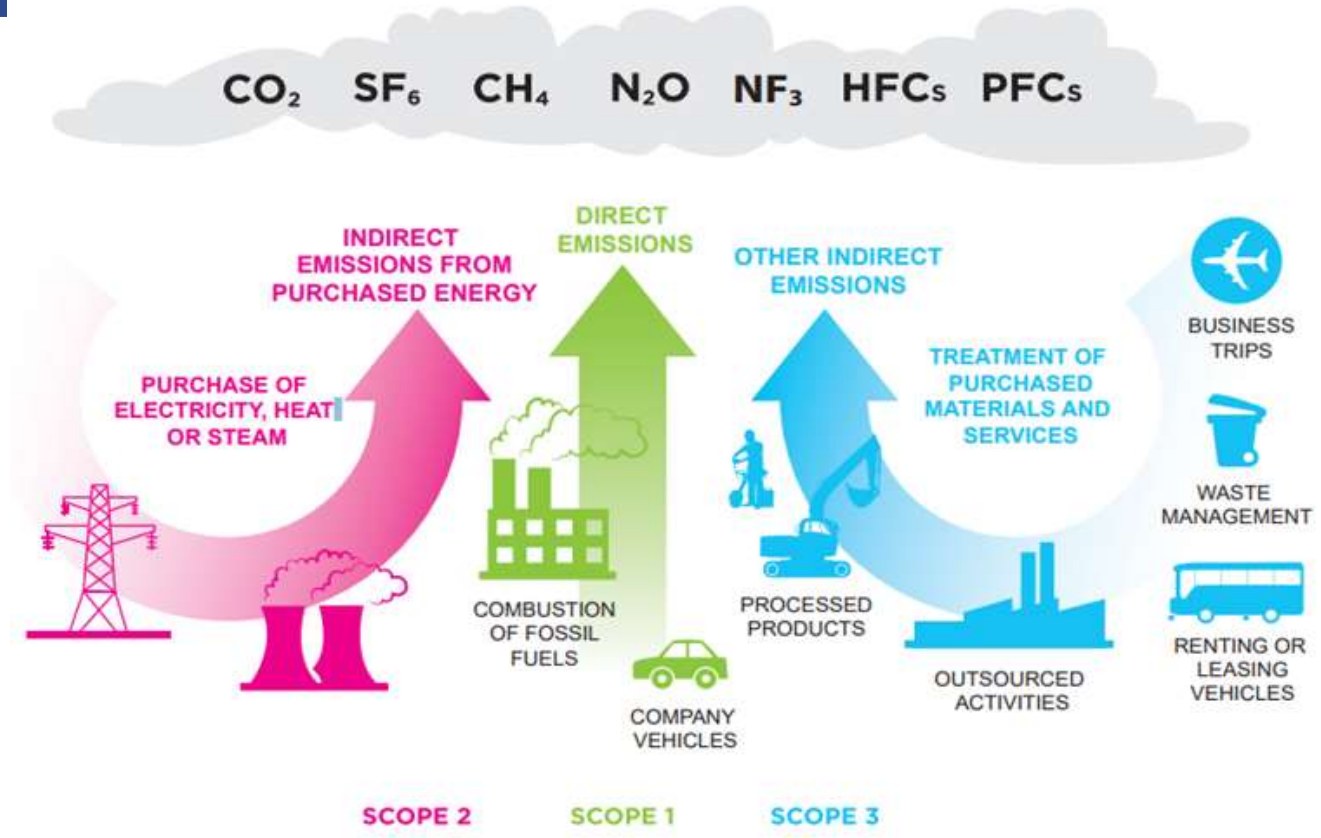
A different kind of company

Unipart Group spans...

Tackling Climate Change

- Aligned with the UN sustainability development goals
- We have committed to becoming Carbon Neutral by year 2030
- We have embedded science based targets in our carbon plan
- Covers scopes 1 and 2, extending to scope 3 this year

Direct and Indirect Emissions Covered



Key Stages Completed

Stage 1

- **Measure & Verify Carbon Footprint (Own Operations)**
- Calculation of own operations Carbon Footprint (Buildings & Fleet)
- External Verification to ISO14064

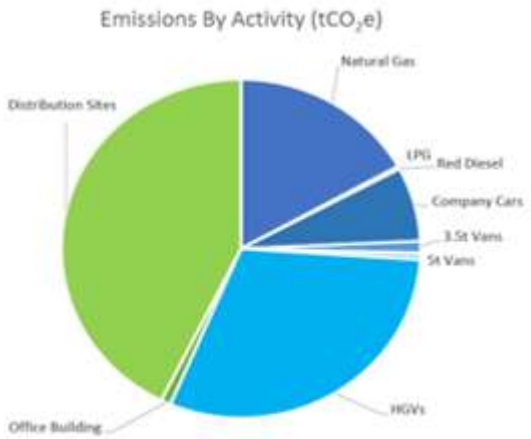
Stage 2

- **Set Science Based Targets (Own Operations)**
- Align targets to climate science and a 1.5 Deg C pathway

Stage 3

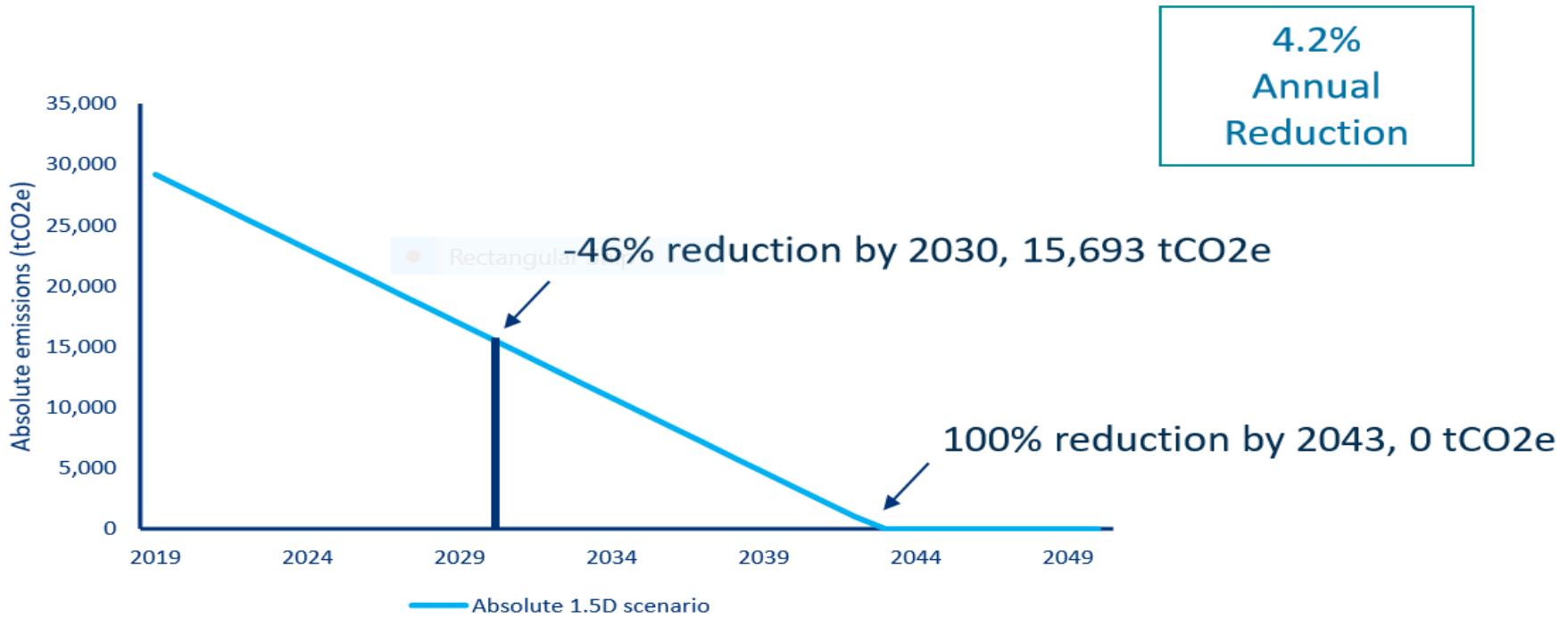
- **Implementation Plan to achieve Science Based Target (Own Operations)**
- Gap analysis between previously identified opportunities and the SBTs reduction pathway – Costs to achieve the target

Stage 1: Measuring & Verifying our Carbon Footprint



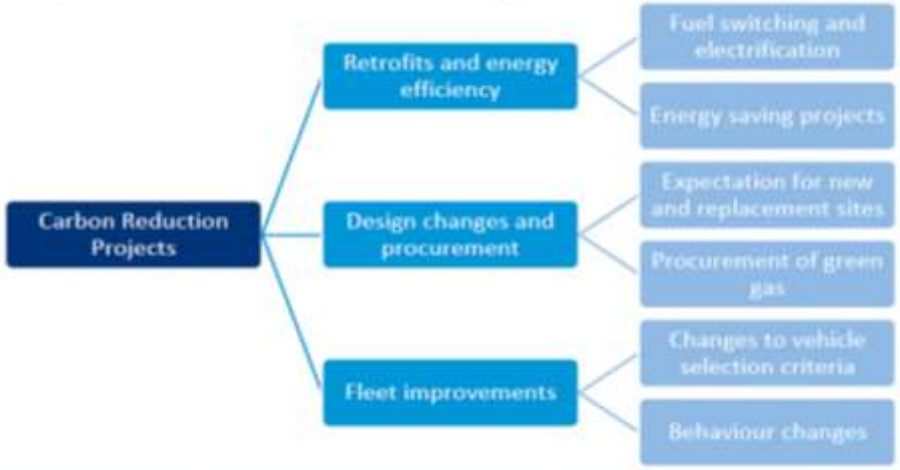
By Activity	
S1: Stationary Sources	Natural Gas
	LPG
	Red Diesel
S1: Fleet	Company Cars
	3.5t Vans
	5t Vans
	HGVs
S2: Electricity (Market-based Approach)	Office Building
	Distribution Sites
Annual total	

1.5D Market-based Scope 1&2 – Absolute Pathway



Stage 3: Project & Technology Mapping

Overview: Collect information on potential initiatives to apply against a portfolio, typically accounting for portfolio wide factors such as grid decarbonisation as a first stage



	Project 1	Project 2	Project 3	Project 4
Site 1	Yes	Yes	No	No
Site 2	No	Yes	Yes	No
Site 3	No	No	No	Yes

Benefits

- Creates a comprehensive list of reduction projects with an roll out plan
- Does not require onsite visits

Requirements

- Dependent on good technical knowledge of client to provide information on initiatives
- Modelling can often be complex as a result of the scaling process

Effort

Driven by complexity of organisation

Landsec

Andy Mazzucchelli

Energy and Sustainability Manager

4/2/2021

Landsec –

Zero Carbon Oxford Partnership

Landsec

Our Net Zero Strategy

We're committed to become a net zero carbon business by 2030

1

Reduce operational energy use in support of our updated science-based carbon reduction target, aligned with a 1.5°C scenario

2

Invest in renewable energy through REGO-backed contracts and Power Purchase Agreements and implement on-site renewables across our assets

3

Use an internal shadow price of carbon to clearly communicate climate-related risks and opportunities in investment decisions

4

Reduce construction impacts through asset retention, efficient design and responsible sourcing

5

Offset remaining emissions through carefully selected projects which actively take carbon out of the atmosphere

Landsec

What we delivered at Oxford Westgate

Sustainability

- The sustainability ambitions for Westgate were far reaching, covering environmental, social and economic factors, with an overarching vision to:
  - exceed local and national policy
  - embrace new techniques and technologies
  - enable a long-term sustainable retail heart for Oxford
- Our Sustainability Implementation Plan outlined 45 different sustainability targets
- Lowest carbon retail destination in the country
- Centralised air source heating
- John Lewis 90% constructed using off site manufactured components
- 4500 structure & façade components made off site
- 25% Recycled content into materials

ZERO CARBON OXFORD

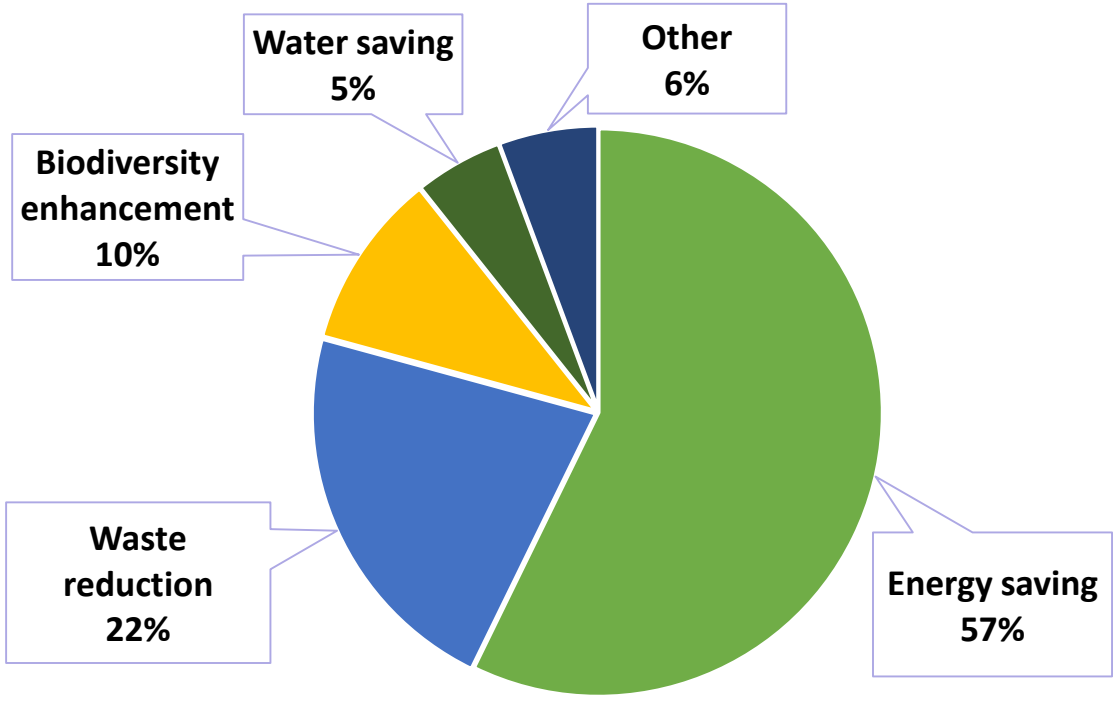
The Conference of Colleges

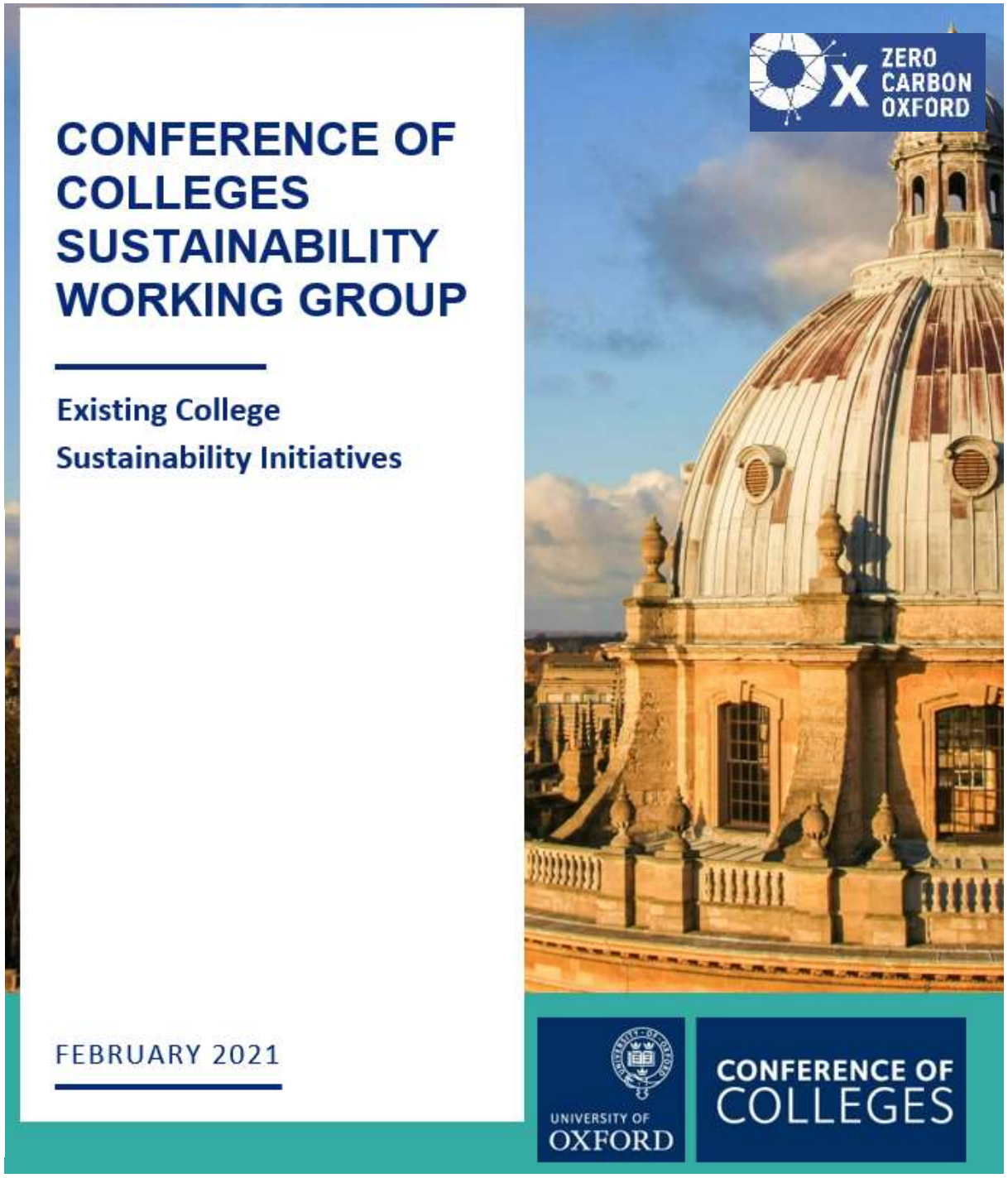
Professor Katherine Willis
Principal of St Edmund Hall

Report on existing work

Colleges have shared details about ongoing, planned or recently completed sustainability projects in four areas: energy saving, water saving, biodiversity enhancement and waste reduction.

Over 300 actions have been reported across 34 Colleges





Conference of Colleges sustainability working group

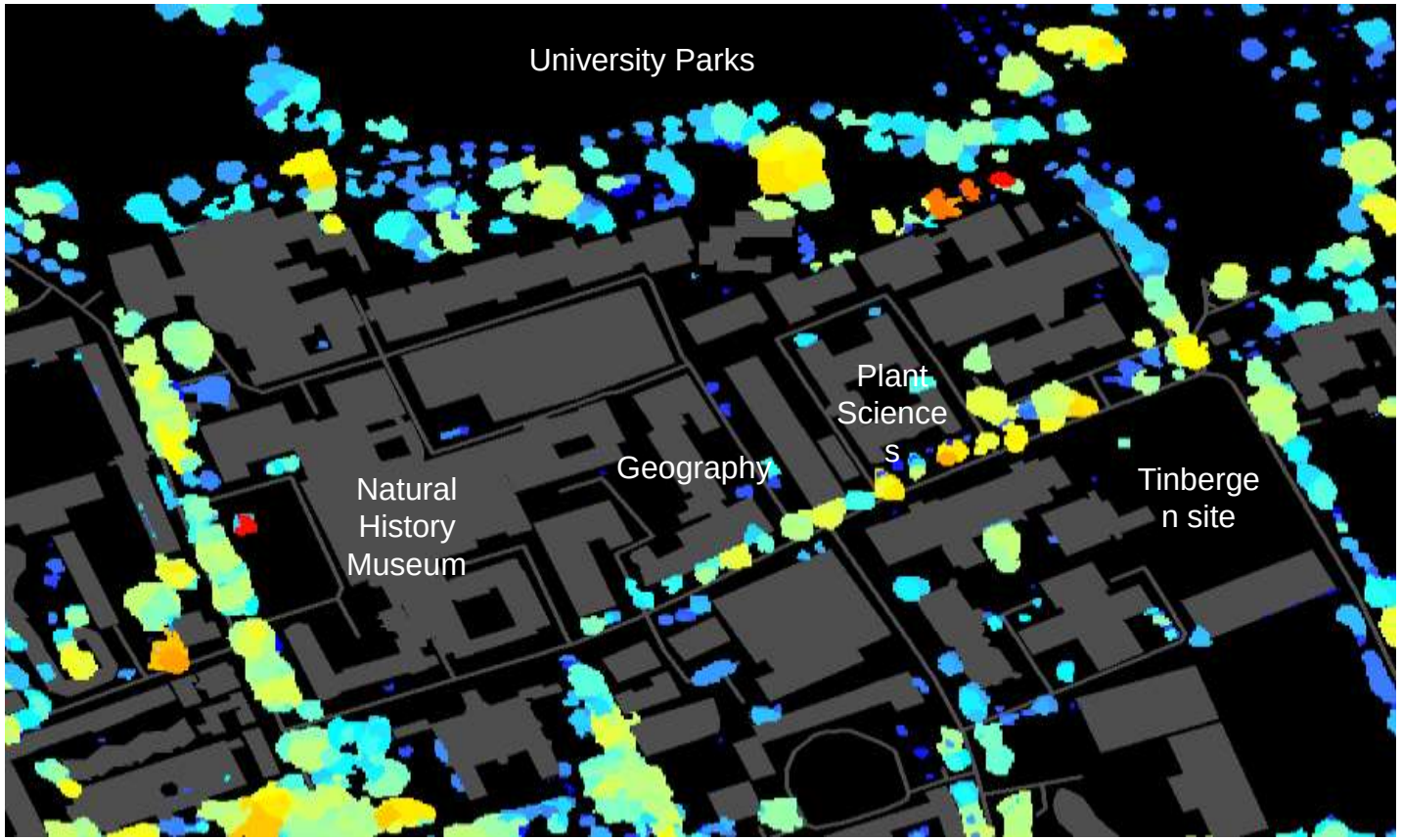
"How can we reduce our current impact on the natural environment individually and collectively as Colleges?"

Step 1: Baseline audits for all colleges

- How much waste do we generate (food, plastic, paper, other)?
- How much energy (gas & electricity) do we use?
- How much water do we use?
- How much biodiversity do we possess?

Step 2: Set meaningful reduction targets based on these current baselines – including zero carbon and net biodiversity gain

Step 3: Determine how we can use a combination of natural and technological solutions to meet targets



National tree map: provides details of height and species of each tree via satellite imagery; with this information can calculate carbon storage & sequestration of college and city trees. Red = tall; blue = short

Above: Solar panels on the roof of Lady Margaret Hall

Right: Air Source Heat Pump at Wolfson College

BMW Mini

Alexandra Schneider

Director of Finance and Compliance

MINI PLANT OXFORD.

HOME OF MINI PRODUCTION.

TU-O-7 | 4th Feb 2021

Alexandra Schneider

BMW GROUP

ROLLS-ROYCE MOTOR CARS LTD

MINI PLANT OXFORD.
AT A GLANCE.

Cars produced: MINI 3 Door Hatch, MINI 5 Door Hatch, MINI Clubman, MINI John Cooper Works, MINI Electric.

Total Production Volume: 222,340 cars in 2019.

Daily volume: Around 1,000 cars,
one new MINI every 67 seconds.

Size of site: 668,500m² (94 football pitches).

Workforce: 4,500 from more than 70 countries, three shifts - five days a week.

ON THE PATH TO CO_2 NEUTRALITY, WE ARE ACTING TODAY.

ZERO CARBON OXFORD

BMW Group CO_2 footprint per vehicle

Our goal is a true and substantial reduction in a period that we can oversee, actively influence and where we can take personal responsibility.

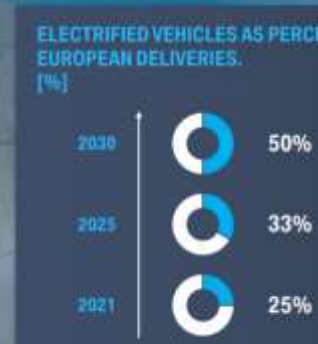
2019: 100%
(~ 52 t CO_2 over lifecycle)

2030: <66%

PARIS2015
COP21-CMP11

ELECTRIFICATION ROADMAP. SIGNIFICANT GROWTH UP TO 2030.

ELECTRIFIED VEHICLES AS PERCENTAGE OF EUROPEAN DELIVERIES. [%]



2023

25 ELECTRIFIED MODELS IN LINE-UP; HALF FULLY-ELECTRIC.

EFFECTIVE CO_2 REDUCTION IN CITY CENTRES. BMW eDRIVE ZONES IN OUR NEW PLUG-IN HYBRIDS.

GERMANY.
ALL 60 CITIES WITH GREEN ZONES.

FRANCE. PARIS, BORDEAUX, LYON, MARSEILLE, STRASBOURG.

THE NETHERLANDS. AMSTERDAM, ROTTERDAM, THE HAGUE, UTRECHT.

BELGIUM. BRUSSELS, ANTWERP, BRUGES, GHENT.

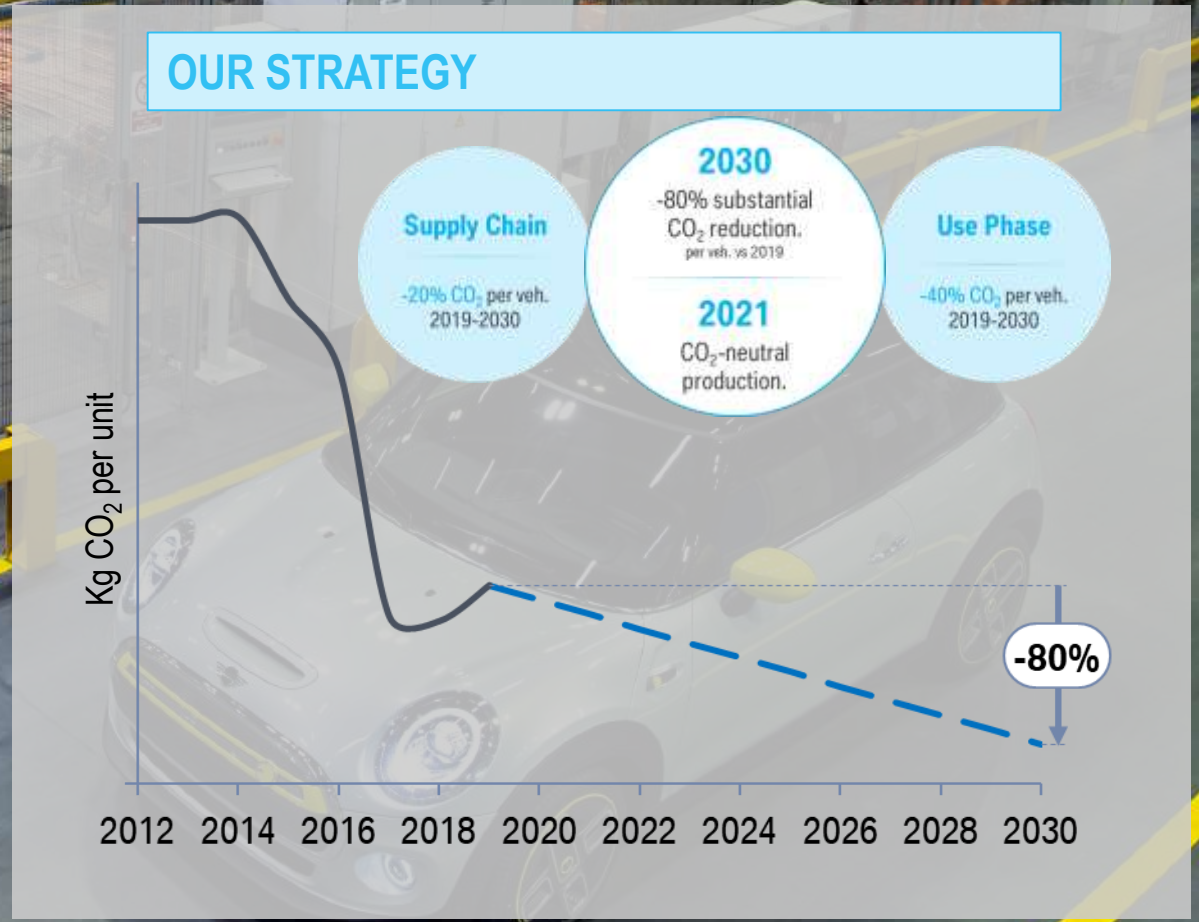
AUSTRIA. VIENNA, GRAZ, INNSBRUCK, LINZ, SALZBURG.

SWITZERLAND. BERN, BASEL, GENEVA, LUCERNE, ZURICH.

SWEDEN, NORWAY, UK.
EACH WITH 3 CITIES PLANNED.

THE JOURNEY SO FAR.

- Back in 2014, MINI unveiled its solar farm with **enough energy to power 700 homes**.
- **Rainwater is harvested** and used for flushing toilets around the Plant.
- **Thermal recovery** technology systems are used to ensure that heat generated onsite can be fed back into the plant.
- Energy efficient, **infra-red heating** is used in parts of the factory to enable workers to feel warm even if the air temperature is lower.
- **Reusable packaging** is used extensively and is sent back to suppliers.



Oxford Brookes University

Professor Alistair Fitt

Vice Chancellor

Oxford University Hospitals NHS Foundation Trust

David Walliker

Chief Digital and Partnership Officer

Oxford Health NHS Foundation Trust

Dr Nick Broughton

Chief Executive

Oxfordshire Local Enterprise Partnership

Ahmed Goga

Director of Strategy and Programmes

A2 Dominion

Jim Smith

Head of Land & Planning (West)

Low Carbon Hub

Barbara Hammond

CEO

Activate Learning

Phil Waddup

Group Director of Property & Facilities

Beard Construction

Mark Beard

Executive Chairman

Lucy Group

Richard Dick

Executive Chairman

Nielsen

Rachel White

Retail Intelligence Leader, UK & Ireland

Oxfam GB

Neil Clark

Corporate Responsibility Adviser for Environment

OXFAM GB : CLIMATE AND CARBON

- **Oxfam GB 2020 Strategy : For a Radically Better World**
- The Climate Emergency noted as a key cause of vulnerability and inequality.

https://www.oxfam.org.uk/documents/241/Oxfam_GB_Strategy_Document__FINAL.pdf

- **Oxfam GB Carbon Reduction Commitment**
- A provisional target of at least a 66% reduction in emissions by 2030;
- the percentage reduction will be confirmed in time for the next UN Climate Summit (COP26) due November 2021.
- The target is from our 2011/12 baseline and;
- without offsetting.
- Committed to being zero carbon by 2045 at the latest.
- This target will be reviewed each year with a view to increasing our ambition as new opportunities and technology become available.

https://www.oxfam.org.uk/about-us/plans-reports-and-policies/corporate-responsibility/

Oxford Bus Company

Phil Southall

Managing Director

Low and zero carbon achievements

Solar panels at Oxford depot with Low Carbon Hub – installed October 2013. More than 800,000kwh now generated

LED lighting installed in Oxford and Didcot – reducing depot energy consumption by c25%.

Solar panels at Didcot depot with Low Carbon Hub – installed September 2019. Already more than 60,000kwh now generated

Low and zero carbon achievements

Oxford's first electric double deck bus was introduced in Feb 2020 to our City Sightseeing service. A second bus has also now been converted and a third is in progress and will be on the road later in 2021. Charging involves an innovative battery storage solution which has helped support Local Energy Oxford trials

Continuing increase in ultra low emission buses in the fleet. We now have 178 Euro VI vehicles in our Oxfordshire fleet, more than three quarters of the total - and 92 vehicles with hybrid electric systems.

River Learning Trust

Paul James

CEO

Scottish and Southern Electricity Networks (SSEN)

Mel Bryce

Oxfordshire Programme Director

Stagecoach in Oxfordshire

Dr Nick Small

Head of Built Environment

Stagecoach in Oxfordshire
Driving towards Zero Carbon

ZERO CARBON OXFORD

Stagecoach

Zero Carbon: "Setting the Challenge" for transport

- **Government's March 2020 statement of intent to achieve ZC transport is clear – bus and coach has to play a much greater role.**
  - May 2020: Stagecoach called on all levels of government to ensure that public transport and active travel are central to a transformed policy and investment approach.
  - We also recognise our great responsibility and investment in this shared endeavour.
- **As overall transport-related emissions have continued to rise absolutely and relatively, Stagecoach has taken consistent action and made concerted investment to decarbonise our business over 15 years**
  - pioneering innovation in renewable power trains: biofuel, Hydrogen, EV
  - Greenhouse gas emissions down 4% in 2019/20 on a like-for-like basis: multiple parallel programmes of action across the value chain, well exceeding regulatory drivers.
  - Awarded new Green Economy Mark in 2020, in recognition of the company's contribution to transition to green economy
  - We have proposed a number of ideas around mobility hubs and mobility credits
  - Committed to having a zero carbon fleet by 2035
- **The future will be challenging**
  - We must take care to properly understand what is necessary to deliver effective solutions that work at scale, when so many competing demands will be made on all kinds of energy resources.

Driving the journey to Zero Carbon in Oxford

- Oxford is well ahead of the rest of the UK in prioritising sustainable travel: forward thinking since 1973.
- This leadership continues:
    - we fully endorse and support the ZEZ.
    - "Electric Bus City" is intended to pathfind for the UK and beyond.
- Decarbonising public transport is clearly beyond any one leader organisation or sector.
    - This will be a long campaign demanding **clarity, courage, collaboration, and competence.**
    - A huge amount still to be understood, requiring **whole news ways of thinking and working**, across all kinds of sectors, disciplines and organisations.
    - We do not have the time or money to waste
- As much as we need to harmonise strategy and maximise investment to release the potential of all forms of renewable energy.
- **Stagecoach Oxfordshire commits to fully engaging our people** – along with the support of our national business, to tackle climate change and improve air quality.

Oxford City Council

Cllr Tom Hayes

Deputy Leader and Cabinet Member for Green Transport and Zero Carbon Oxford