



**Exeter**  
CityFutures

# Exeter City Futures

**ECC Scrutiny Committee**  
**16 June 2022**

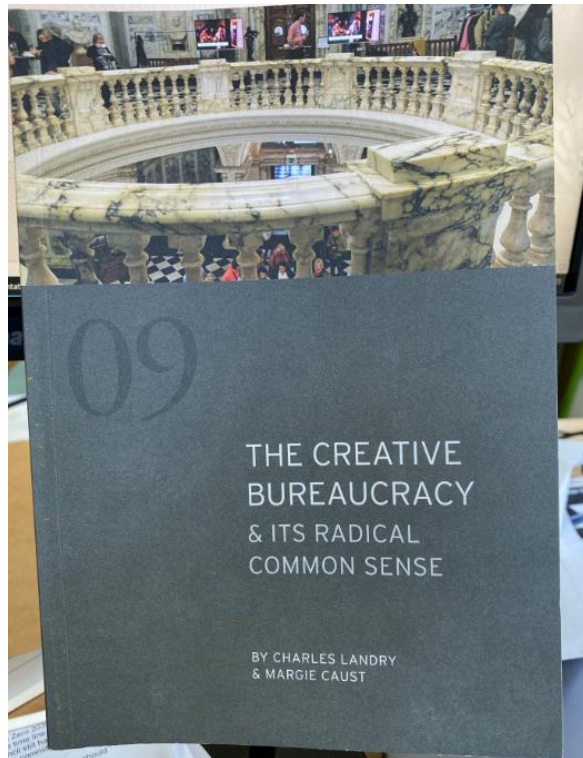
**Karime Hassan MBE**

CEO, Exeter City Futures CIC  
Chief Executive & Growth Director,  
Exeter City Council



# The Creative Bureaucracy & its Radical Common Sense

Charles Landry &  
Margie Caust



**“Wicked problems** are proliferating; **these problems we must address even though we do not know the precise answer or roadmaps. This calls for foresight and the ability to relax into uncertainty or ambiguity as we invent the future.** Stark and threatening choices face humanity and although we know what a richer, sustainable life could be, our collective intelligence seems incapable of making it happen.

**Governments, across all levels, especially through their convening power and in collaboration with others, are called upon to provide the guidance, roadmaps and programmes** that will anticipate and avert looming catastrophes, grow the quality of life, reduce inequalities and stimulate economies.”

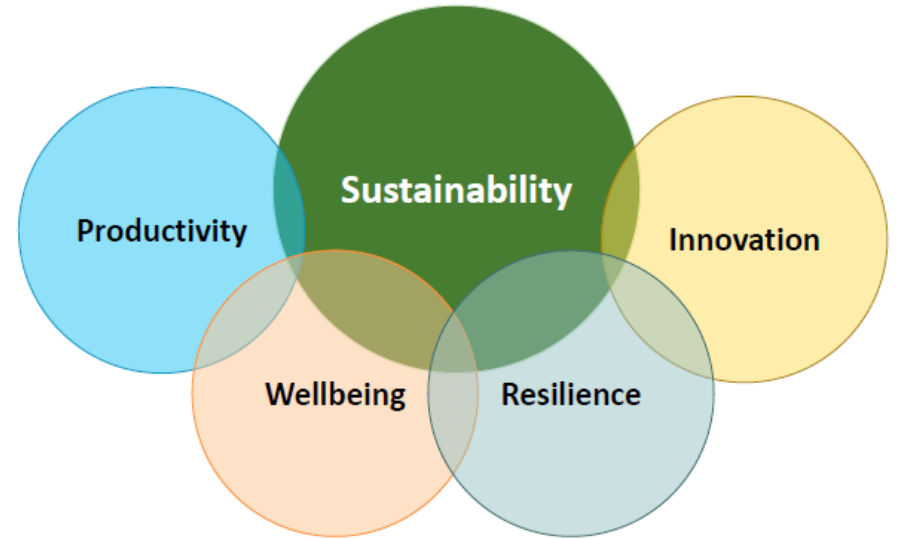




# COLLABORATION

City-wide institutions need to be prepared to collaborate for outcomes, to work together to build an inclusive, healthy and sustainable city.

- ▶ The Exeter City Futures (ECF) Community Interest Company was publicly launched in January 2016.



Sustainability is at the heart of being a great city-region



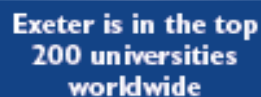


## STRUCTURAL CHALLENGES : Region and City the economy

- Relatively low waged economy
- Business density - dominated by large public sector employers relatively lower levels of start-ups and SMEs
- Lower levels of productivity
- Low levels of innovation
- Where are the wealth generating opportunities?



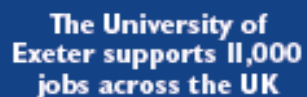
**Working collaboratively with the City to build a  
healthier and more sustainable Exeter**



**Exeter is in the top 200 universities worldwide**



**Digital Tech Industries** are central to the city of Exeter's economy. Between 2010 and 2014 it experienced a 161% growth in its digital tech employment, the highest in any cluster



**The University of Exeter supports 11,000 jobs across the UK**



Exeter currently has a population of approximately 129,800 and is the second fastest growing city in the UK (Centre for Cities 2018) – in the previous year's report (2017) we were the #1 fastest growing



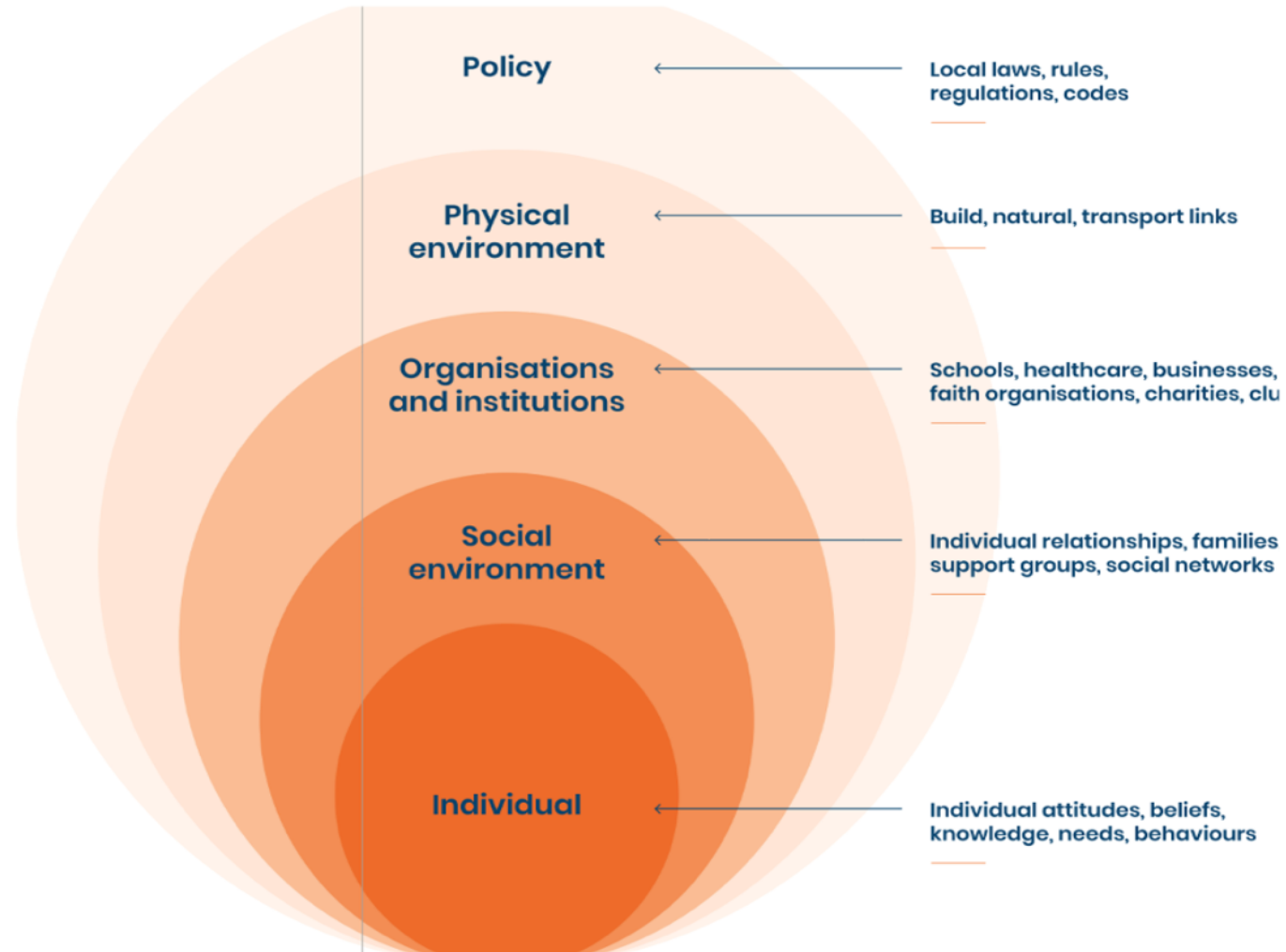
**Exeter is the UK's  
fastest growing  
and fastest rising  
research university**





# WHOLE SYSTEMS APPROACH

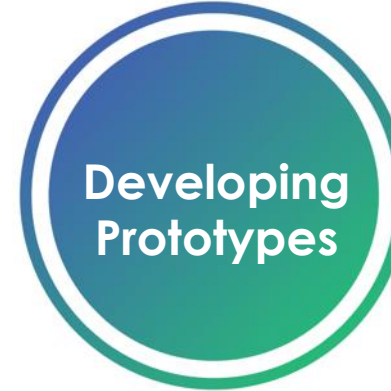
We need to take a whole systems approach to net zero, we need to look at all the components together and create positive social change.





# THE ROLE OF ECF

**Exeter City Futures is a vehicle for change, helping to create the environment conducive for people to act.**





# ECF: DEVELOPING THE CITY'S CAPABILITY

## Sustainable Finance and Infrastructure

Harness capital from within the City to enable sustainable, subsidy-free investment in infrastructure development that delivers the City vision

## City Innovation

Create the right institutions, process and support structures to nurture the right solutions to our challenges and build on our strengths.

## Data and Analytical Skills

Develop the skills and capabilities to harness and interpret data to ensure value generation globally and locally - become the world's leading analytical city

## Enabling Environment

Build governance structures, policies and processes that foster collaborative experimentation and shared vision

# An analytical Approach **E-DISC Analytics Apprentice**

Exeter Data Information Science Collaborative (E-DISC) brings together leading city organisations to develop the city's technical data analytical skills for the future by building data and analytics skills of local young people.





# EXETER VELOCITIES



- ▶ The innovative Exeter Velocities programme launched in 2017 and offered support and funding for start-ups with ideas to reduce our dependence on fossil fuels and drive positive social impact.
- ▶ Built from a desire to build a strong entrepreneurial ecosystem in the forward-thinking city of Exeter, Exeter Velocities raised almost £6m of investment, and £125k of grant funding into 34 start-ups.



escargo

binit



RunFriendly





# EXETER DEVELOPMENT FUND

This Exeter Development Fund is a fresh approach to city development which intends to support new communities with sustainable, high-quality, affordable and net zero housing, whilst also providing a long-term revenue stream for the public sector.





# EXETER'S 2040 VISION

- ▶ "By the time they are an adult, a child born in Exeter today will live in a city that is inclusive, healthy and sustainable – a city where the opportunities and benefits of prosperity are shared and all citizens are able to participate fully in the city's economic, social, cultural and civic life"
- ▶ An innovative and analytic culture will support communities, businesses, civil society and public bodies to work together to solve the city's challenges and achieve its ambitions. The city institutions work collaboratively with a coherence in pursuit of the city's vision.





# 12 Goals

- In 2018 ECF published 12 Goals for Exeter, to replace the 'congestion free and energy independent' mission tagline. In 2018 Exeter City Council cited ECF as the mechanism to address strategic priority of tackling congestion and accessibility. These provided the framework for the net zero 2030 plan.







# EXETER'S NET ZERO PLAN

Exeter's Net Zero Plan, adopted by the Council in 2019, sets out a series of practical actions that local authorities, organisations and individuals can take, with associated carbon savings and cost, all of which Exeter will need to put in place in order to become net-zero carbon.





# ECF: EXAMPLE PROJECTS

- › Launch of the Net Zero Plan 2030
- › Exeter Velocities Start-Up Accelerator Programme
- › Immersion Challenge Programme with Devon and Cornwall Police
- › Exeter Data Information Science Collaborative (E-DISC) Apprenticeships
- › Creation of the 'Reimagining Exeter' Interactive Map
- › Exeter Data Mill (with The Impact Lab)
- › Exeter Development Fund
- › Launch of city-wide Slack Platform
- › Energy Independence Report
- › Covid response: Co-ordinating Community Hampers
- › Community Workshops
- › Connect Events
- › Emergency Roundtables



# EXETER: TOP 5 PRIORITY ACTIONS

- ▶ Move to Renewable Energy Sources
- ▶ Retrofit Homes
- ▶ Create Work and Healthcare Hubs
- ▶ Electrification of Public Transport
- ▶ Electrification of Private Transport







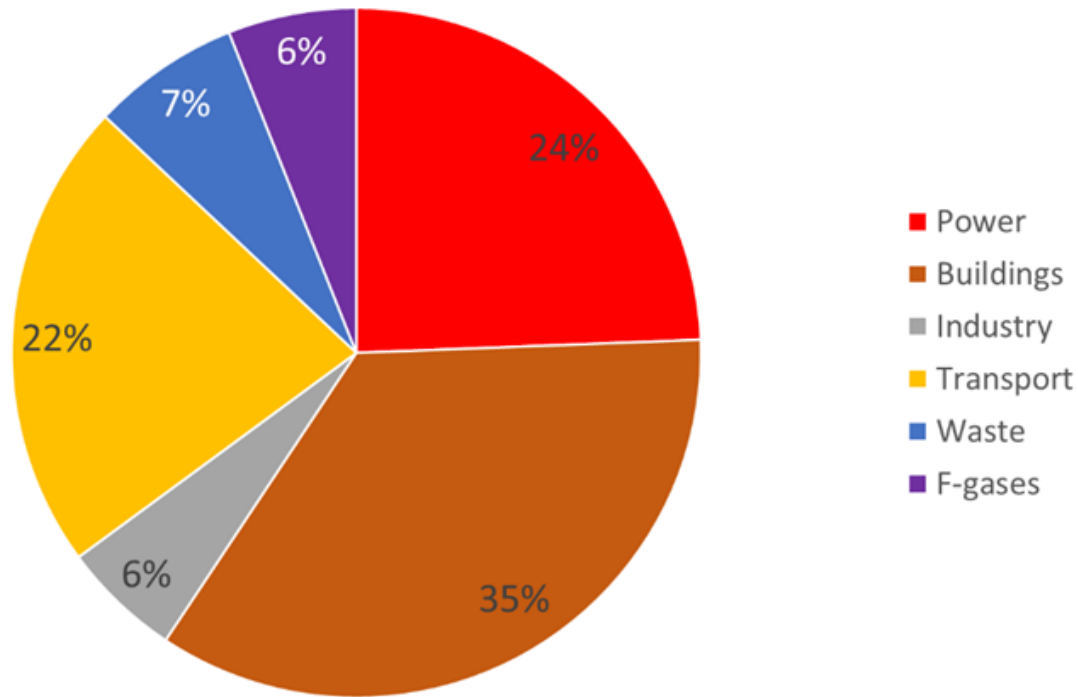
# THE CITY OF EXETER'S: GREENHOUSE GAS INVENTORY

- ▶ The City Council declared climate emergency in 2019 pledged to work towards creating a carbon neutral city by 2030
- ▶ Exeter Vision 2040 commits to a Net Zero Exeter 2030
- ▶ The Target year is in advance of the national net zero target required under the Climate Change Act and reported on in the Sixth Carbon Budget.
- ▶ The Centre for Energy & the Environment at the Uni of Exeter was commissioned to produce a baseline greenhouse gas inventory and to quantify the reductions required to achieve net zero in 2030.



# EMISSIONS TREND

Estimated total greenhouse gas emissions in Exeter in 2019 are 476,221 tonnes of carbon dioxide (t CO<sub>2</sub>e). The graph and table gives the breakdown of emissions.

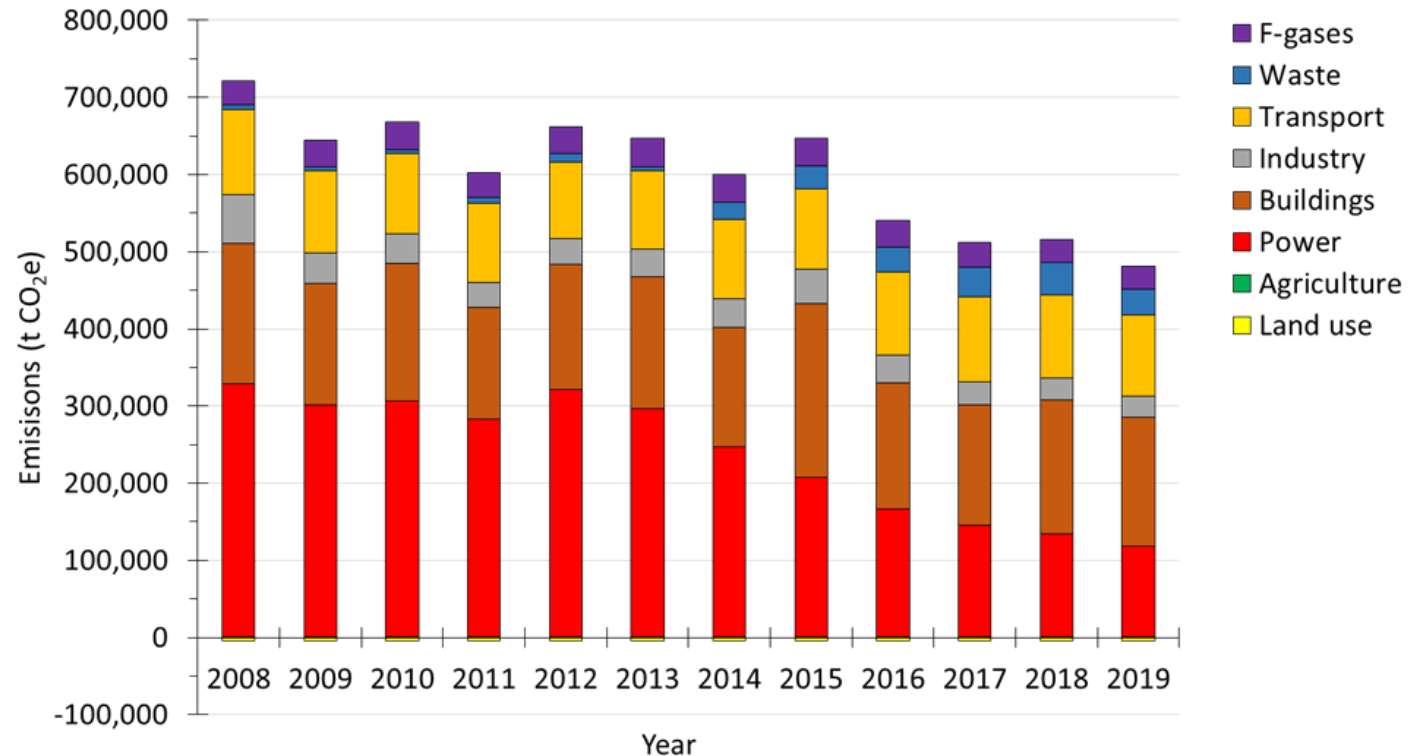


Sector	GHG emissions t CO <sub>2</sub> e
Power	117,077
Buildings	167,684
Industry	26,795
Transport	106,023
Waste	33,449
F-gases	28,914
Agriculture	948
Land use	-4,669
Total	476,221



# METHODOLOGY AND RESULTS

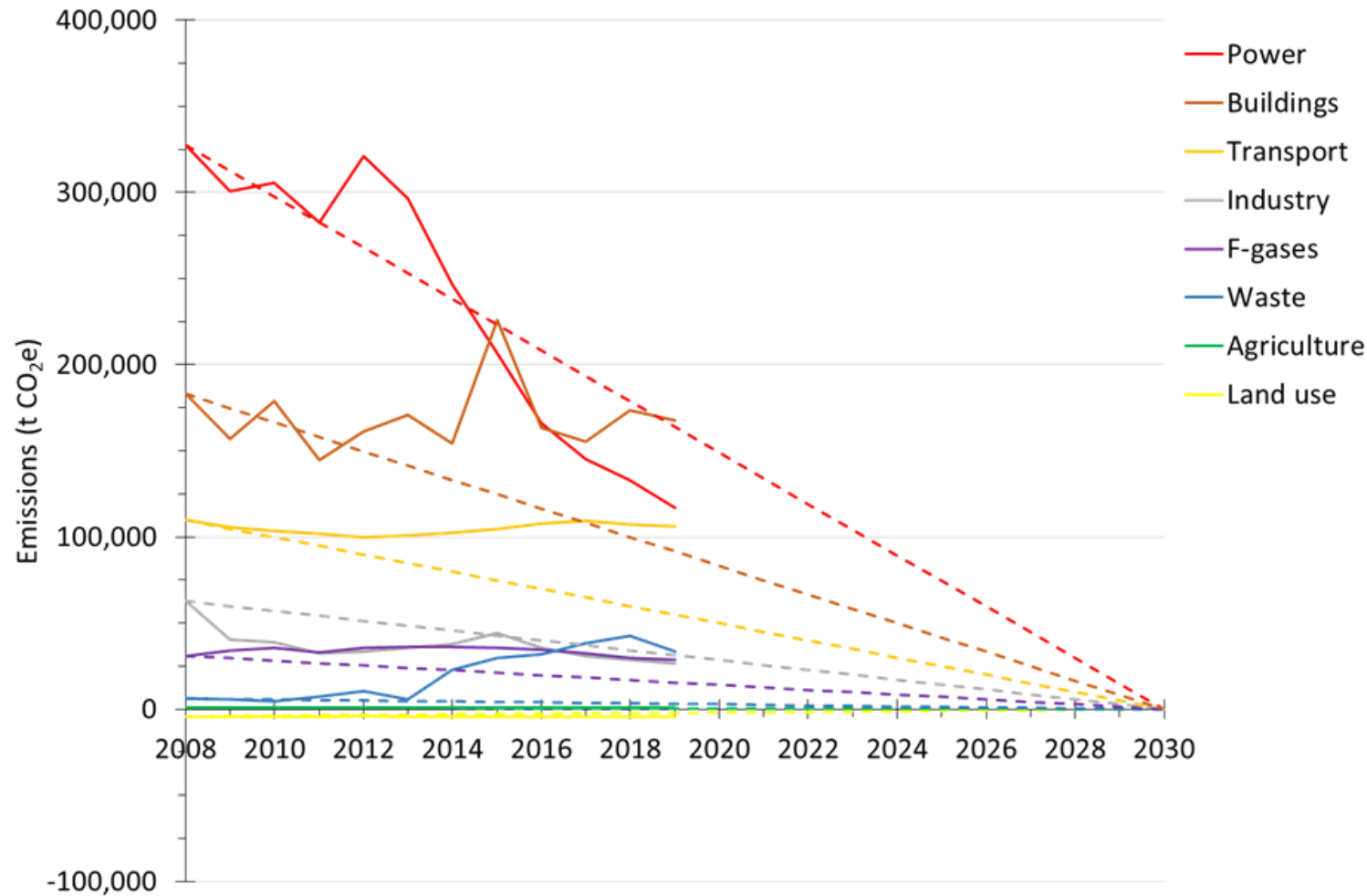
The graph shows the breakdown of emissions for each year since 2008. GHG emissions in Exeter have generally been on a downward trajectory with estimated GHG emissions of 717 kt CO<sub>2</sub>e in 2008 declining by a third by 2019.







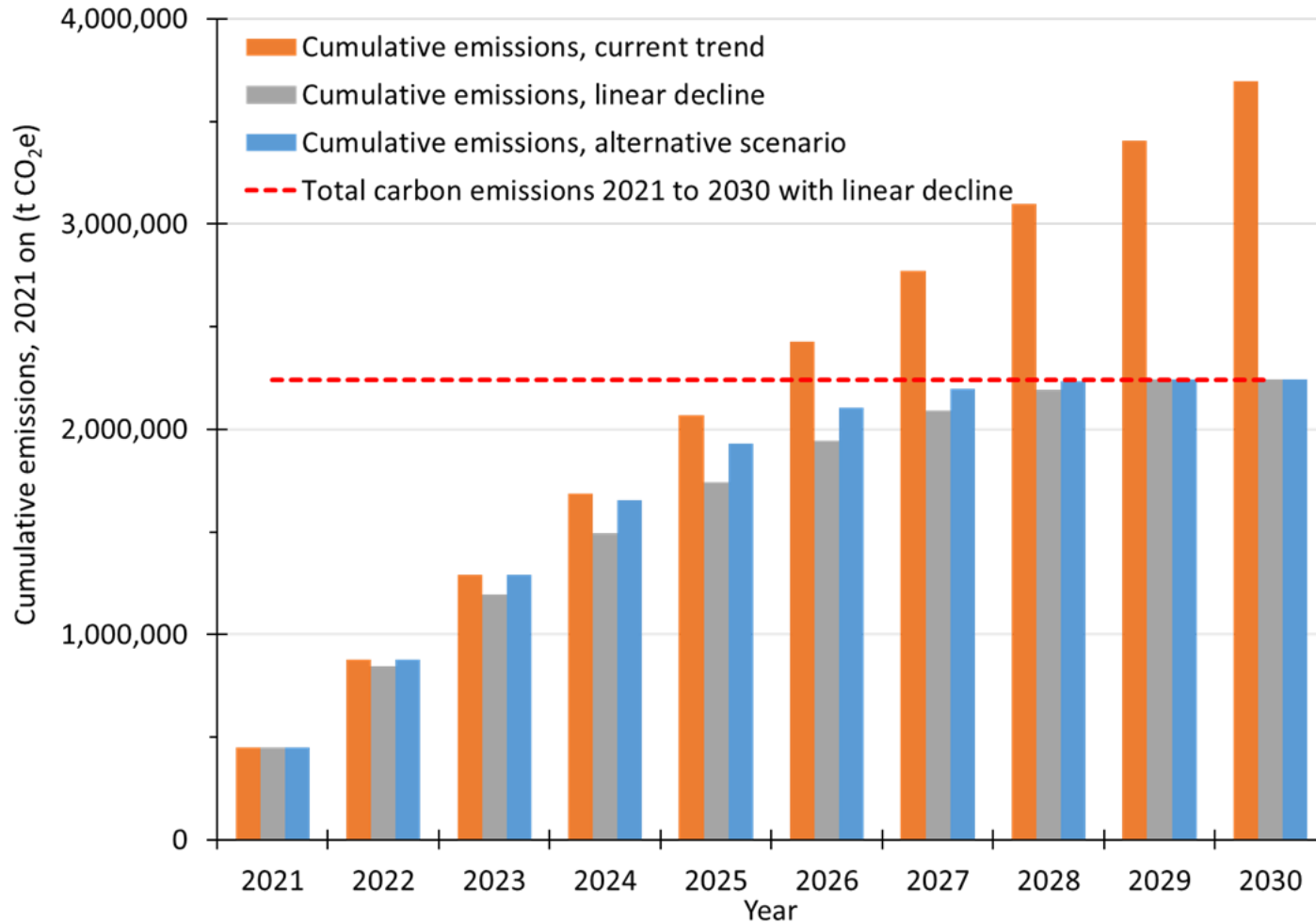
# EMISSIONS REDUCTION



Emissions reductions against a linear trajectory to net zero by 2030 (dotted), 2008 base, by sector.



# EMISSIONS REDUCTION



Emissions reductions against a linear trajectory.



# OBSERVATIONS

- Greenhouse gas emissions in Exeter are on a downward trajectory.
- Emissions of 717 kt CO<sub>2</sub>e in 2008 declined by a third to 476 kt CO<sub>2</sub>e in 2019.
- Likely that the city will meet a 2020 target of a 30% reduction from 1990 levels (516 kt CO<sub>2</sub>).
- Changes to date due largely to the reduction in the carbon intensity of the national electricity grid: a 64% reduction in emission from the power sector (with most generation plant located outside Exeter).
- The city is missing 2020 sector targets for emission reduction from buildings and transport by factors of 6 and 4 respectively.
- Lack of progress in these sectors is particularly concerning, with growth in the city leading to increases in emissions in recent years.
- **The city needs to make significant progress in reducing emission from buildings and transport to deliver net zero.**



# OBSERVATIONS

- Extrapolating the current trend from 2016 suggests emissions in 2021 will be 448 kt CO<sub>2</sub>e.
- Continuation of the current trend without local GHG reduction relies on unrealistic grid decarbonisation (implying a zero carbon grid electricity in 2026).
- While it may be realistic to assume current trend estimates for 2021 can be achieved with grid decarbonisation, by 2030 a 28% reduction from non-power sectors would be required to continue the current trend to 2030 while still leaving residual emissions of 291 kt CO<sub>2</sub>e in 2030 and cumulative emissions of 3.7 Mt CO<sub>2</sub>e over the decade.
- **A linear decline in emissions from 2021 to zero in 2030 would yield cumulative emissions of 2.2 Mt CO<sub>2</sub>e. The current trend, which itself requires significant non-electricity emissions reduction, exceeds this amount in 2026.**





# SCALE OF THE CHANGES REQUIRED

- ▶ 1,200 +PV installations each year every year to 2030, compared to 36 in 2020, a six-fold increase in the long run average installation rate.
- ▶ Installing loft insulation in 25,400 homes by 2030 or 2,800 homes each year every year to 2030.
- ▶ Insulating the walls of 13,500 homes by 2030 at the rate of 1,500 every year.
- ▶ Putting 4,600 heat pumps in homes every year to 2030, there are currently 449 heat pumps in Exeter's homes.
- ▶ Connecting an extra 11,200 homes to heat networks by 2030; over 1,200 each year.
- ▶ Improving the energy efficiency of 260 non-domestic buildings every year to 2030 and switching 270 every year to low carbon heating.



# SCALE OF THE CHANGES REQUIRED

- ▶ Reducing driving in Exeter by 10 million kilometres each year, every year to 2030.
- ▶ Continuing the exponential growth in electric vehicles ownership (aiming for 317 in 2021) and putting in an additional 81 charging points in every year to 2030.
- ▶ Increasing cycling rates 3.7 million kilometres annually (equivalent to 70% of the current total level) with matching increases in walking.
- ▶ Achieving a 1.3 kt (3.3%) annual reduction in household waste generation each year, every year and a 4.2% annual increase in recycling rates each year, every year to 2030.
- ▶ Capturing and storing CO<sub>2</sub> emission from the Exeter energy recovery facility by 2030.



# DISCUSSION POINTS

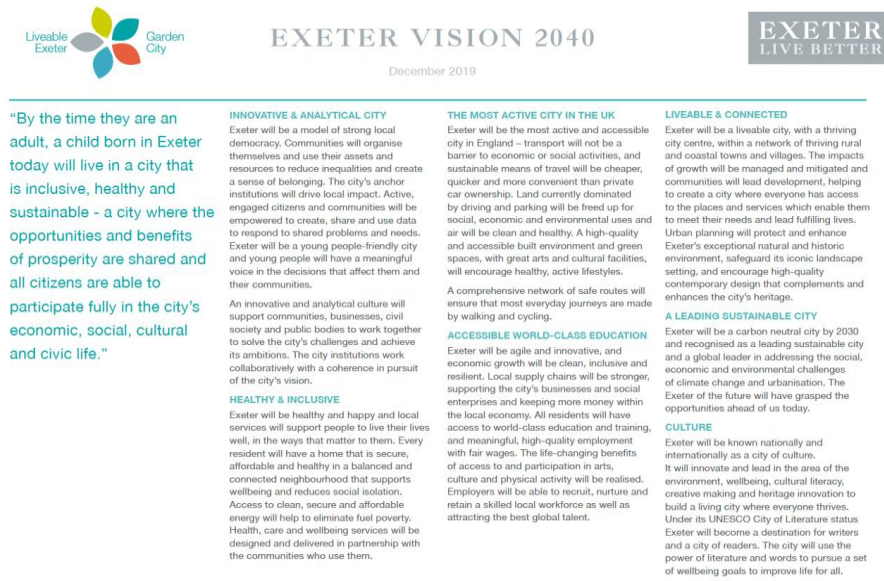
- Barriers to delivery and **key points of pain**, what are they?
- Are members up for the **scale of the challenge** and also the **scale of the opportunity** to stimulate innovation and support the economy?
- The pace and scale of change required to deliver on the Net Zero 2030 goal will require a **step change in resources, activity** and policy making both at a local and national level.
- Do members recognise the **limited powers** councils have over many areas contributing to the emissions and therefore the need to work collaboratively?
- The targets included in the Greenhouse Gas Inventory provide a good basis as a start for a strategic dashboard but no single organisation has the powers or levers to deliver. Therefore who owns the Plan and performance measures?
- **The Technical, Financial and Political issues** raised in getting to net zero ahead of the 2050 national commitment.
- **The constraints on the grid** and a doubling of demand for energy, what are the implications
- **The development of mechanisms** for ensuring biodiversity gains and carbon off setting is credible



# EXETER'S 2040 VISION : THE OPPORTUNITY

## A leading sustainable city

“Exeter will be a carbon neutral city by 2030 and recognised as a leading sustainable city and a global leader in addressing the social, economic and environmental challenges of climate change and urbanisation. The Exeter of the future will have grasped the opportunities ahead of us today.”





# Environmental Intelligence Solutions:

Global leadership on the  
transition to net zero  
and the green industrial  
revolution





# Exeter expertise

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The world-leading assets that are required to fully exploit the power of EI are located in Exeter: the University of Exeter and the UK Met Office. Bringing together internationally renowned expertise in climate change and biodiversity with data science, artificial intelligence and high performance computing means that Exeter is the UK's leading 'Knowledge Asset' in delivering Net Zero and leading us towards a sustainable interaction with the natural environment.

The University of Exeter is home to the UK's five most influential climate scientists\* and for more than twenty years have been leading the way in interdisciplinary research to better understand and tackle environment and climate change.

By mobilising our expertise in research and education we are accelerating global action in partnership with governments, businesses and communities.

## World leading integrated Environmental and AI Research

- Exeter houses more of the world's top 100 climate scientists than anywhere else in the world.
- Over 1000 researchers in environment, data science and computing.
- £64M NERC Portfolio; Ranked 2nd in overall value of grants and fellowships
- Life and Environmental Sciences ranked 1st in Europe and 11th in the world CWTS Leiden Ranking.
- Doubling of investment in Data Science and Computing over past 5 years.
- University partner of the Alan Turing Institute and lead Environment and Sustainability Theme.
- One of only two UKRI AI Centre of Doctoral Training in Environmental Intelligence.
- Over 34 environment-facing Centres and Institutes with extensive range of projects and programmes.
- Leading the translation of AI and environmental research to business-ready information.
- Multi-million pound regional projects supporting SMEs.





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

## For the purposes of Climate Neutral Now:

### CLIMATE NEUTRALITY

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A balance between GHG emissions and removals. Achievable at global/planetary level, and at stakeholder (companies, organizations, subnational authorities, individuals) level.

At stakeholder level, only carbon credits from projects that capture GHGs in the long term can be used.

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### CARBON NEUTRALITY

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Action by a stakeholder (company, organization, subnational authority, individual) to reduce and avoid emissions, and then compensate the remaining ones through the use of carbon credits. Use of carbon credits from projects that reduce, avoid and temporarily capture GHGs is possible. Not applicable at global/planetary level.

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### NET ZERO

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Synonym with climate neutrality.

Therefore, climate neutrality and net-zero at the stakeholder level are similar to carbon neutrality, but they differ in the types of projects/activities used to compensate for the remaining GHG emissions.



### **Scope 1 or direct GHG emissions:**

These are GHG emissions from fuel combustion, vehicles, and fugitive emissions (such as refrigerants or nitrogen fertilisation) that are within the organisation or state's direct control.

### **Scope 2 or electricity indirect GHG emissions:**

These are GHG emissions related to the production of electricity, heat, and steam purchased by the organisation or state.

### **Scope 3 or other indirect GHG emissions:**

Also referred to as "value chain" emissions, these are other indirect GHG emissions, not included in Scope 2, related to the organisation or region's wider activities but that come from GHG sources owned and/or controlled by others. This includes emissions indirectly related to the use of consumer goods and associated transport, waste treatment, and the travel of employees and visitors. The GHG Protocol defines 15 categories of [Scope 3 emissions](#).

