Title: Climate Change Plan: creating the conditions for change through direct action and a new form of place-based leadership for Cornwall to become net carbon neutral

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1.0 Introduction

1.1 The scale of the challenge that climate change presents us with is unprecedented. The warming climate due to anthropogenic (originating from human activity) emissions, coupled with rapid biodiversity and ecosystem loss, is combining to create a mass extinction event that threatens or severely impacts all life on our planet.

1.2 This crisis is not something that any of us are insulated from, and the impact of climate change is already being felt across the globe. While major national and intercontinental organisations can plan for how we meet this challenge head on, action is incumbent on us all, across multiple systems, communities, organisations and individuals. Only through breaking with traditional leadership models can we hope to tackle this existential threat, and Cornwall can and should be at the forefront of this place-based, systems leadership approach.

1.3 Science is now building a strong consensus on the need for action. The Intergovernmental Panel on Climate Change (IPCC) special report on Global Warming, published in October 2018, describes the enormous harm that a 2^{o}C rise is likely to cause compared to a 1.5^{o}C rise. The report went on to say that limiting Global Warming to 1.5^{o}C may still be possible with ambitious action from national and sub-national authorities, civil society, the private sector, indigenous peoples and local communities. Additionally, the recent Intergovernmental Panel for Biodiversity and Ecosystem Services (IPBES) stated that around 25% of the world's species are now at threat of extinction due to habitat loss and the effects of climate change.

1.4 The Committee on Climate Change recently reported that for the UK to reach 'carbon net zero' by 2050, there will have to be a quadrupling of low carbon electricity, major scale carbon capture and storage, and a fifth of our agricultural land must shift to alternative use. All of this would need to be matched by accelerated afforestation and habitat restoration as well as a strategic overview of how the communities of Cornwall will function and enable a carbon neutral future.

1.5 The 'Urgency on Climate Change' motion was put to full Council in January 2019. The motion called on the Council to provide resource to prepare a report within six months to establish how Cornwall can sufficiently reduce

carbon emissions through energy efficiency, low-carbon fuels and investment in renewable energy within a timescale which is consistent with an ambition to restrain Global Warming to 1.5°C. An amendment to the motion went further, declaring a climate emergency and calling on Westminster to provide the powers and resources necessary to achieve the target for Cornwall to strive towards becoming carbon neutral by 2030. Since this declaration, we have seen growing public support for environmental action which aligns with our priority to create a Green and Prosperous Cornwall, exemplified by the Youth Strike 4 Climate marches.

1.6 It must be highlighted that opinion is divided on the pace required to meet this emergency; Extinction Rebellion state that we should aim for carbon net zero by 2025, The UK Committee on Climate Change along with the IPCC both reference dates of 2050 for carbon neutral, which the UK Government announced that it would adopt on the 12 June 2019. For Cornwall to meet its target of 2030 will require local systems change that falls outside of the national legislative cycles that will be developed for a target of 2050; support from Government will be vital in achieving our accelerated goals, and will need to be targeted in areas with most impact to unlock our ambitions. The way that communities live and operate is crucially bound up with infrastructure for transport, jobs and homes. The process of change for this is long but needs to begin now.

1.7 It cannot be stated strongly enough that to meet the ambition of the motion by 2030 will be incredibly challenging. It is not yet clear whether it is an achievable goal, and it may prove to be impossible, however, it is an ambition the Council is prepared to pursue in good faith and in endeavouring to achieve the goal will take us further than backing off this challenge. The evidence available shows that the scale of change is unprecedented. Global and national system change will be needed to support local system change.

1.8 Therefore, this is not another service performance goal familiar to Council Members and Officers, where control and accountability is clear and supported through existing statute or policy. This is a challenge where the totality of the solutions needed is not clear and the approach we take will be emergent. We will need to put in place appropriate governance arrangements to ensure accountability which adhere to the Council's constitution and decision making process, however, we anticipate the extent of the challenge,

potential solutions and community opinion are all things that need to inform the evolution of our actions and plans.

1.9 Thus, the Council cannot provide all of the solutions, as combating climate change needs system wide change that involves communities, business, individuals and stakeholders across all sectors of the economy. We have an opportunity to address this challenge through the development of a longer-term vision and spatial strategy for Cornwall – coined as the Vision 50:50 Project. The Council is best placed to lead this work through a co-creation process. It will require major investments, changes to systems of how we use and interact with energy and changes to how we live our lives and define success. It will also redefine how we manage and interact with our environment. Above all, it will involve a collective leadership and shared ambition to deal with this challenge head on, and this report today sets the framework for how we can define and develop future actions. Cornwall Council's direct control over the emissions from Cornwall is minimal, at around 0.4%.

1.10 Our most powerful lever is partnership, and leadership where appropriate, enabling action and galvanizing a collective approach to tackling the most fundamental challenge of our time. Having comprehensive systems based leadership model in place for this Cabinet report is not possible, but it is clear on the direction of travel required. We have begun the process of identifying what is needed and we have aspired to work with a comprehensive system based leadership approach during the production of this report, although we recognise there is more to do as we move beyond this first report.

1.11 This report sets out the scale of the challenge that we face to meet the climate motion. It reflects the work that has been done both before the Council Motion and since it was declared. It defines what actions and leadership are needed to work towards the ambitions of the Council Motion. To inform this work we have captured evidence from a wide range of stakeholders to create the evidence base. This report outlines the journey that as a society we will need to embark on together, it is impossible to capture within this report all of the solutions that are required to deal with a challenge of this magnitude.

Our principles and approach

1.12 Cornwall Council's response to the climate emergency will align with the following principles:

1.13 **Support a just transition:** Cornwall Council is committed to building a carbon-neutral Cornwall that is fair for all. The 9 Planetary Boundaries and the UN Sustainable Development Goals provide foundational frameworks for both planning and assessing our actions in future. Cornwall Council's response to the climate emergency will be guided by the UN's Sustainable Development Goals' focus on addressing climate change whilst also driving increases in social justice locally and globally. We will:

- Plan, invest and implement a transition to environmentally and socially sustainable jobs, sectors and economies, building on Cornwall's strengths and potential.
- Create opportunities to develop resource efficient and sustainable economic approaches, which help address inequality and poverty
- Design and deliver low carbon investment and infrastructure, and make all possible efforts to create decent, fair and high value work, in a way which does not negatively affect the current workforce and overall economy

1.14 **Transparency:** We also want to ensure we have transparent principles for the different aspects of working with our partners and residents to create a constructive and inclusive environment for these plans and decisions on the future to be made within. During the development of this plan we have briefly outlined our intent to work on sharing this challenge

During development of the plan, we have considered that the following approaches will play an important role:

- Shared Spaces – create facilitated spaces for safe conversations
- Shared Values – to navigate challenging conversations
- Shared Principles – to approach creating solutions with, e.g. Participative, Localised, Equitable
- Shared resources – to optimally deploy the resources we have locally
- Shared Goals – to generate mutual understanding of responsibilities and actions

- Shared Outcomes – to share impacts fairly

2.0 What does Climate Change mean for Cornwall?

2.1 Climate change is already upon us. While there are visible impacts of this in increased flooding, wind, rain and storm intensities, there are also hidden impacts such as droughts, biosecurity with the risk of invasive species, and seasonal changes to the food chains for species. The summer of 2018 was the joint hottest ever recorded in England, and summer temperatures could increase by up to 10 degrees centigrade in parts of England if the current trajectory global warming continues1. Cornwall acts as a break-weather and break-water for the south of the UK, and is particularly susceptible to flood risk from intense rainfall and our coastal communities are at risk from storms and erosion.

2.2 While certain parts of the world will have more severe and imminent impacts (such as low lying areas in South East Asia), Cornwall and the wider UK are not immune. These impacts only highlight the need to act now on reducing our emissions. The UK Climate Impacts Programme (UKCIP) published its revised UK Risk Assessment in 2018, this is now being applied by the Environment Agency at a regional level which will provide us with update figures (replacing those from 2009) on the risks faced in Cornwall in the coming months. We expect significant change in the risk assessments and thus have not included the previous assessment figures in this report. The Action Plan includes the requirement for this assessment; as to make good decisions about what to invest in we must understand the consequences of climate change with and without action, both, will result in consequences to Cornwall, it is the severity of these consequences that we seek to mitigate through our mitigation and adaptation investments.

2.3 The World Health Organisation identifies climate change as the greatest threat to global health in the 21st century. The impacts for Cornwall, although less than for some other parts of the world, will still be significant. There will be an increase in heat wave days and a longer heat wave season. Increasing temperatures will cause additional heat-related mortality and ill health, including heat stress, cardiovascular disease, and kidney disease. There are

[1] Climate change impacts and adaptation, Environment Agency, 2018

currently 2000 heat related deaths per year in the UK and this is predicted to rise to 5000 by 2050 with the elderly and those with health conditions most vulnerable. Small changes in temperature and precipitation can result in large changes in the suitability for transmission of important vector-borne and water-borne diseases. Some diseases that have not previously been transmissible in the UK such as malaria and dengue fever could become established as well as an increase in the prevalence of existing diseases such as Lyme disease. Flooding events present an immediate risk to life and a risk of water-borne infection but there are longer-term impacts on health particularly mental health. Following the Somerset floods there was a significant increase in depression, anxiety and PTSD. Stagnant weather causes poor air quality whilst thunderstorms increase the effect of allergens causing 'thunderstorm asthma'. People will also be exposed to new allergens, which may increase respiratory disease. Unpredictable and changing weather patterns may reduce crop yields and rising temperatures will threaten marine fishing as a food source. The resulting increase in food prices puts those on low incomes at risk of under-nutrition. Drinking water supplies may also be compromised with significant associated health risks.

2.4 There are the obvious physical environmental impacts from climate change, the health impacts noted above, there will also be significant social impacts, if food, resource or medicine availability changes due to disrupted supply chains this will all have a societal consequence due to the impacts on the globalised system we are all reliant upon. In anticipation of such changes, many people across the generations are reporting feelings of anxiety, fear and grief due to the changes that are happening now across the world and how that will in due course impact on the UK too. These impacts will intensify in future, as the acute effects of climate chaos creating, storms, flood events heat waves and droughts impacts on different communities.

2.5 It is the change in the balance in the scale and distribution across geographies of the demand and supply for resources around the world, which will have a local expression. In Cornwall, we have specific vulnerabilities, such as an aging population; therefore, caring requirements are likely to increase, as vulnerable people need additional support to cope as the climate becomes more chaotic; delivering this care may also become more complex as we have to redesign transportation and other social systems to become carbon neutral. Digital technologies offer some avenues of opportunity, but this must

not be at the expense of maintaining and in some cases re-establishing community level cohesion and systems across Cornwall, which will be essential for resilience to climate change effects.

2.6 Cornwall is also notably economically poorer than other areas of the UK and climate change will be amplifying the challenges already faced by communities in Cornwall. As a region with significant inequalities, poverty and health issues, climate change will exacerbate these issues and we must ensure the actions we take are sensitive to the existing predicaments of individuals and communities as well as those faced in the future.

What have we done already?

2.7 Cornwall is not starting from scratch on its journey towards becoming net carbon neutral or on adapting to climate change impacts. There has been a transformation of our energy sector that now provides around 37% of our electricity from renewables, significantly higher than the national average of 33% in 2018, and up from around 6% in 2009.

2.8 Award winning initiatives such as the Green Cornwall programme have driven forward major change in retrofitting of houses, installing electric vehicle infrastructure, promoting community and council owned renewable energy projects and developing potentially new forms of power in technologies such as deep geothermal. Although this programme did stall from its original intent and form, more recently, the Council as one of the partners on the Integrated Territorial Investment Board has committed approximately £120m from the latest round of European Regional Development Funding to low carbon projects which has boosted investment in to the sector again alongside, the other positive programmes and activities that are reducing emissions across Cornwall as a result of around 20 years of work across multiple organisations.

2.9 An additional £50m of European Development Funding has been allocated to environmental protection, climate change and resource efficiency projects; providing important foundational demonstration projects for the delivery of Cornwall's Environmental Growth Strategy (2015-2065). Projects delivered through a variety of partnership programmes including the Tevi Project, that demonstrates how contributing to the circular economy and environmental growth is both good for profitability and reputation of Cornwall's businesses.

The Green Infrastructure for Growth project, also known as Making Space for Nature, has delivered visually beautiful biodiversity and accessibility enhancements to open spaces across Cornish towns. Two major flood prevention programmes are also in to deal with the impacts of climate change at Longrock (Long Rock Coastal Improvements) and at Par and St Blazey (StARR Project).

2.10 Transport has been and remains a critical aspect of the response to the Climate Change Emergency, as this sector is responsible for more than a quarter of Cornish GHG emissions. One of the six core goals in "Connecting Cornwall 2030", adopted in 2011, is our current Local Transport Plan. At the time of adoption, this was a very progressive Strategy, linked directly to managing the impact on transport on the climate, there are relevant policies throughout the strategy around modal shift, and protecting our environment, which all play a key role. Major flagship projects have resulted from the Strategy, which have made fundamental impacts on the accessibility of public transport in Cornwall. The Truro Park and Ride and St Erth Multimodal Hub, Cornish Mainline Re-signalling and half-hourly timetable and the One Public Transport System delivered through Cornwall Devolution Deal are transforming our public transport network.

2.11 We want to promote active travel in Cornwall and we are doing that by identifying town wide walking and cycling networks. We also aim to deliver transformation cycle networks through funding commitments such as the recently announced Highways England Designated Funds programme. Major construction schemes already include measures to offset the impact of transport infrastructure on the environment by including green infrastructure to achieve biodiversity net gains such as for the St Austell A30 link road. Reducing Cornwall Council's own environmental impact is also being progressed through the Corporate Travel Plan.

2.12 We have made positive steps in the right direction, and we, like the rest of the UK have also been subject to policies and models of growth, which have increased the extent of fossil fuel, based lifestyles, our homes, jobs and transportation still predominantly all rely on fuels that produce carbon emissions. There are some extremely difficult choices ahead, which will need us to revise the way we live; requiring redesign of existing societal systems and infrastructure as well as reviewing the impacts of plans we have been developing for future delivery. This is a critical choice point for Cornwall, on

the type of society, economy and environment we want to live within and to create for future generations. Each choice we make will matter and needs to be taken in the context of all the other decisions we make, we have to think and act in a system based approach.

3.0 Where are we now?

Baseline evidence – Greenhouse Gas (Carbon) inventory

3.1 Developing the action for how Cornwall can work towards becoming carbon neutral depends on a sound understanding of not only where we have come from, but also where we are now and ultimately where our current plans are taking us.

3.2 The University of Exeter was commissioned to provide the initial evidence base to help us ensure that Cornwall Council's response to the climate emergency is informed by science based targets and expert guidance to ensure we deploy the most effective solutions to help us tackle climate change. This is incredibly important to understand which sectors we should collectively be focussing our efforts on, informing system wide approaches to technology transitions, different approaches to land management, food and waste systems, lifestyle and behavioural change, sector specific requirements and the mitigations we will need in place either through natural climate or technology solutions. Many of these requirements will not be in the gift of the Council to deliver, but it is important that as a key leader in our local system the Council has the information required to help shape this transition with local and national partners.

3.3 The first piece of University of Exeter work, completed for this report has provided us with an updated Cornwall Greenhouse Gas Inventory for the 2008-2016 data years using the World Resources Institute's Global Protocol for Community-Scale Greenhouse Gas Inventories (GPC). As well as carbon dioxide emissions Cornwall's new Greenhouse Gas Inventory includes methane and nitrous oxide emissions and for the first time an estimate of our F-gas emissions.

The results: Cornwall's Carbon Footprint

3.4 Cornwall's carbon footprint (2016) has been estimated at approximately 4MtCO2e. Carbon is emitted via the following sectors, in order of significance (see Fig. 1 and Table 1 below for a breakdown);

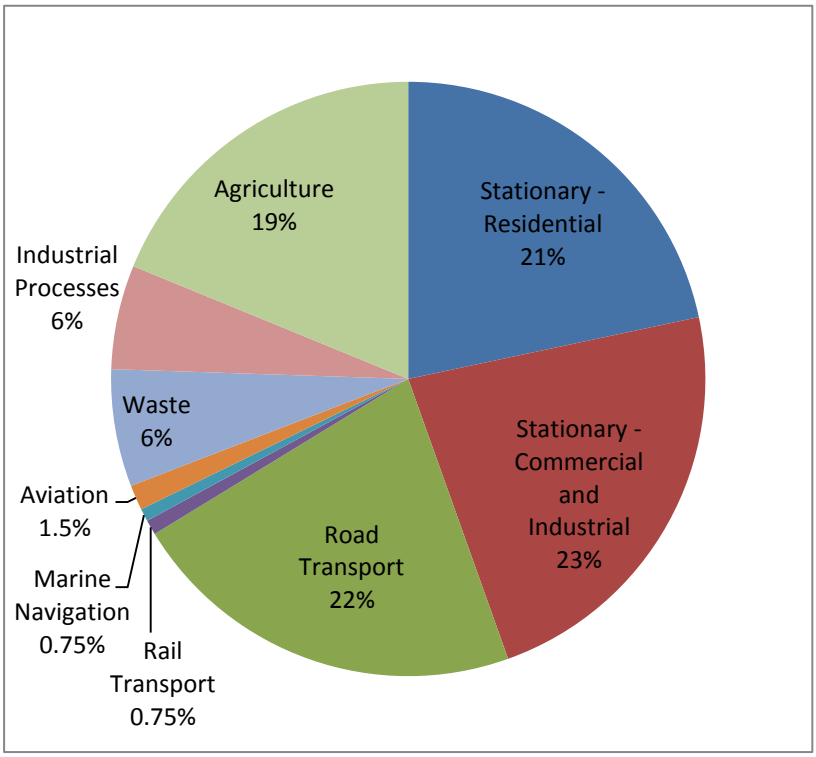


Figure 1. Cornwall Greenhouse Gas footprint (2016) – breakdown of emitting sectors.

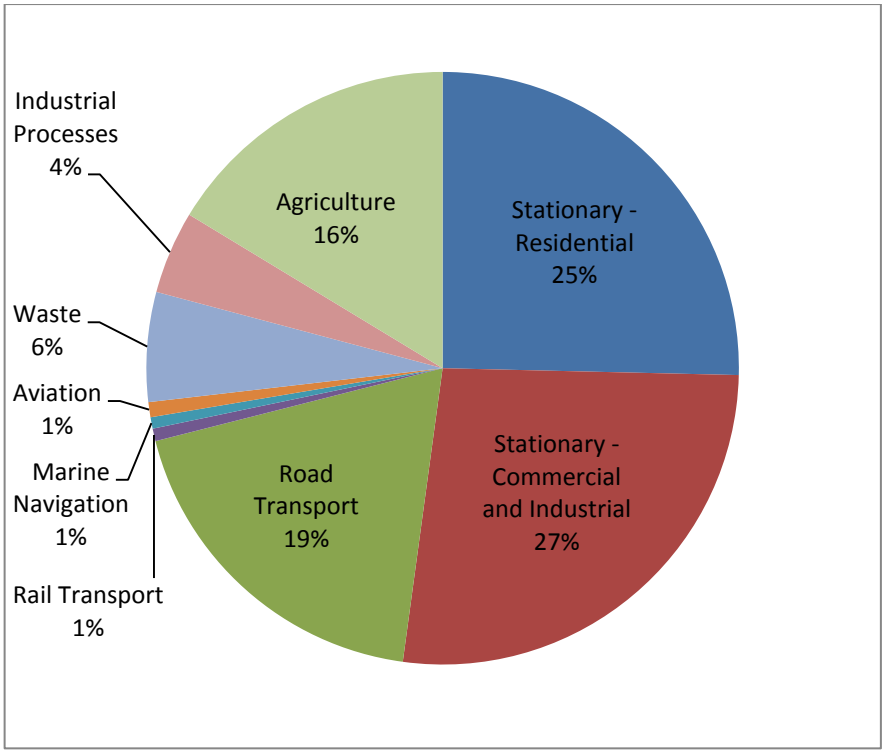


Figure 2. Cornwall Greenhouse Gas footprint (2008) – breakdown of emitting sectors.

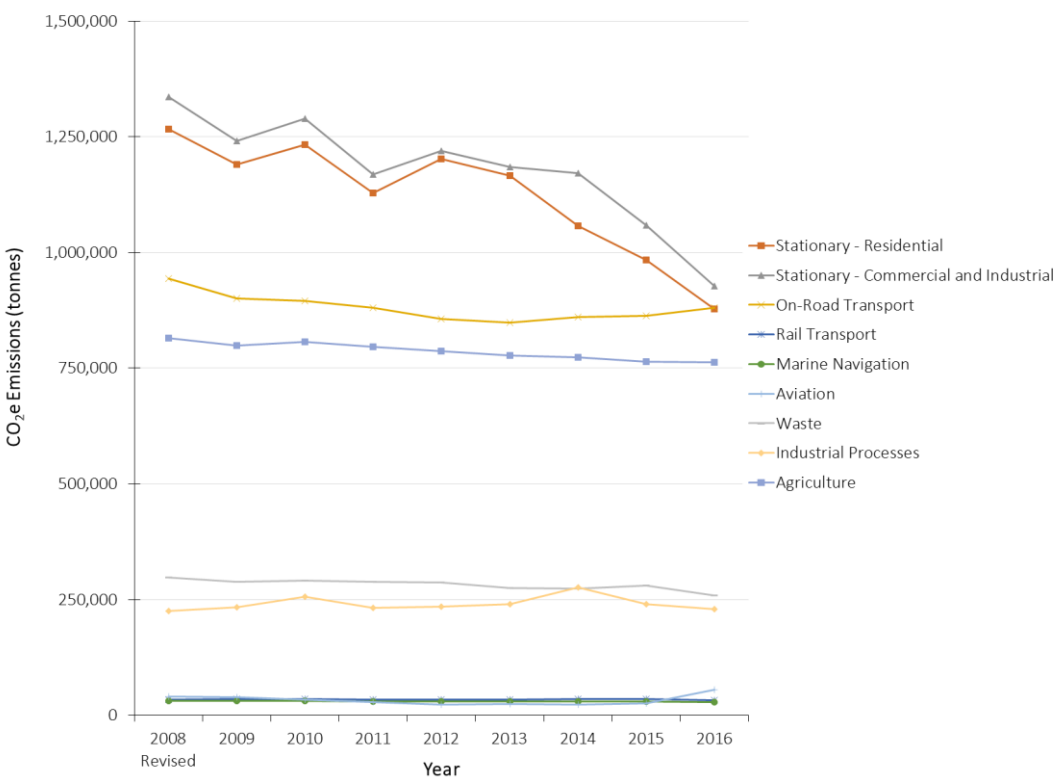


Figure 3 Cornwall Greenhouse Gas footprint (2008-2016) – emission trends across sectors.

Year	Stationary - Residential	Stationary - Commercial & Industrial	On-Road Transport	Rail Transport	Marine Navigation	Aviation	Waste	Industrial Processes	Agriculture	Total
2008 Revised	1,266,058	1,336,516	942,953	34,162	31,132	41,021	298,185	225,690	815,045	4,990,763
2009	1,190,617	1,241,164	901,102	34,725	31,381	39,811	288,805	233,687	798,252	4,759,545
2010	1,233,429	1,289,383	895,840	34,929	31,165	33,833	291,235	255,865	807,459	4,873,139
2011	1,128,692	1,168,162	880,388	33,553	30,292	28,087	287,804	232,725	795,510	4,585,213
2012	1,201,894	1,219,800	856,920	34,092	30,202	22,467	286,393	234,753	786,858	4,673,380
2013	1,166,422	1,184,343	848,572	33,410	29,954	24,642	274,423	239,828	776,920	4,578,514
2014	1,057,851	1,171,380	861,072	34,842	30,417	23,584	273,364	276,226	772,779	4,501,514
2015	984,134	1,058,895	862,871	34,707	30,318	26,215	280,675	239,537	763,809	4,281,161
2016	878,000	927,265	880,564	33,147	28,007	55,489	258,745	229,758	762,225	4,053,200

Table 1. Emissions by sector in Cornwall

Year	Stationary - Residential	Stationary - Commercial & Industrial	On-Road Transport	Rail Transport	Marine Navigation	Aviation	Waste	Industrial Processes	Agriculture
2008 Revised	25%	27%	19%	<1%	<1%	<1%	6%	5%	16%
2009	25%	26%	19%	<1%	<1%	<1%	6%	5%	17%
2010	25%	26%	18%	<1%	<1%	<1%	6%	5%	17%
2011	25%	25%	19%	<1%	<1%	<1%	6%	5%	17%
2012	26%	26%	18%	<1%	<1%	<1%	6%	5%	17%
2013	25%	26%	19%	<1%	<1%	<1%	6%	5%	17%
2014	23%	26%	19%	<1%	<1%	<1%	6%	6%	17%
2015	23%	25%	20%	<1%	<1%	<1%	7%	6%	18%
2016	22%	23%	22%	<1%	<1%	<1.5%	6%	6%	19%

Table 2. Emissions by sector in Cornwall 2008-2016 by percentage of total footprint

3.5 The research suggests that in Cornwall we have reduced our carbon footprint by just under 19% (937.5 ktC02)) in the 8 years since we last produced a Greenhouse Gas inventory in 2011 (2008 data year; 2019 revised figure) and the latest figure we have (2016 data year; 2019 figure)

3.6 Since the IPCC 2010 (1.5°C report) baseline Cornwall has reduced our emissions by 16% (0.76 MtCO2e). To achieve the IPCC's global target of keeping emissions below 1.5°C Cornwall will need to deliver a further emissions reduction of between 1.4 MtCO2e by 2030 and 4 MtCO2e by 2050 (see Fig. 4).

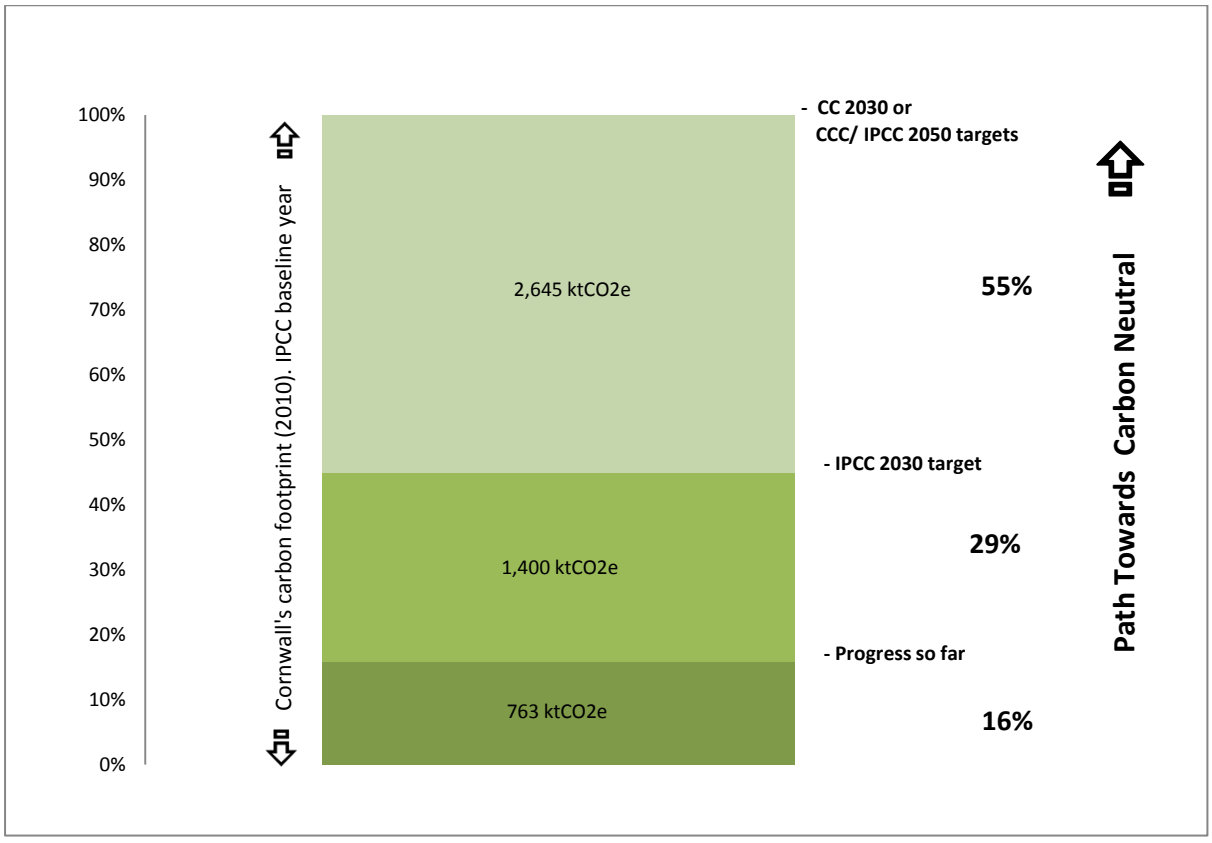


Figure 4. Cornwall's carbon neutral challenge.

3.7 At least two thirds of the emission reductions having been achieved by decarbonising electricity, beyond decarbonisation of electricity the remaining reductions came from reduced energy use associated with the heating homes and businesses. With minimal reduction having occurred in transport, this is now Cornwall's largest emitting sector making up 25% (approx. 1 MtCO2). Although there have been emissions reductions in the sector, agriculture is also growing proportionally in its percentage contribution to Cornwall's

carbon footprint as other sectors reduce their proportional contribution (such as the production of electricity)

3.8 Balancing out some of our emissions an amount of carbon dioxide approximately equivalent to 3.5% of Cornwall's total emissions footprint was captured by land use and forestry activities in 2016. The ability of these natural carbon sinks to draw down carbon are increasing by about 0.2% of our carbon footprint each year. Given this growing contribution to Cornwall's carbon footprint and availability of grassland's suitable for afforestation, it is possible that natural land use changes could draw down around 9% of current total emissions by 2050. Important to note is this figure will proportionally increase as the overall size of our footprint falls.

Where must we focus our efforts?

3.9 Further work will be required to ensure that emissions from electricity continue to fall, however greater emphasis will need to be placed on reducing emissions from transport, agriculture, heating, and waste, as well as increasing the carbon draw down from the natural environment, if Cornwall is to move towards carbon neutrality.

4.0 Where do we need to get to and how could we do it?

4.1 To better understand the possible pathways towards achieving carbon neutrality, Cornwall Council has commissioned the University of Exeter to analyse what a carbon neutral future for Cornwall could look like and what we will need to do in order to get there. The first stage of this work will look into different scenarios for Cornwall achieving carbon neutral by different timescales, using the UK Committee on Climate Change's (CCC) Net-Zero UK standard scenario to provide an illustration of a:

- *Cornwall baseline:* a 'do-nothing' counterfactual scenario: that will be used to illustrate the business-as-usual baseline emissions reduction from which the carbon neutral by 2030/2050 can be contrasted.
- *Carbon neutral Cornwall by 2030:* a scenario showing the changes we need to make to achieve a carbon neutrally by 2030 (in line with the ambition set in the CC motion);

- *Carbon neutral Cornwall by 2050:* a scenario showing the changes we need to make to achieve a carbon neutrally by 2050 (in line with the proposed target set out in CCC Net-Zero report, the UK Parliament 'climate emergency' declaration) and more recently Government commitment;

4.2 Once this initial set of three scenarios has been worked-up they will form the basis for discussions with stakeholders and further work with the University of Exeter to consider the different potential interventions mixes which could be deployed to enable Cornwall to become carbon neutral.

4.3 The outcome of this second phase of work will provide a suite of published bespoke Cornwall specific emission reduction pathway options, which cover all sectors and will provide an outline of the different routes Cornwall could take in-order to respond to the climate emergency.

Our journey to carbon neutrality

Setting a 'blue print' for carbon neutral life in Cornwall

4.4 Using the outcomes of the Carbon Neutral Scenario work we will work with communities to identify the changes that need to be made to the way we live in Cornwall to create a blueprint of the future. This will closely link to the Vision 50:50 work programme which will refresh our spatial approach to delivery of our strategies across Cornwall, which will bring together the:

- Existing strategies which already form a positive suite of Council policy ('Connecting Cornwall' and the 'Environmental Growth Strategy').
- Emerging new policies such as the (Local Industrial Strategy, Energy Strategy and Wellbeing and Health Strategy), will enable us to make tangible the features of carbon neutral life in Cornwall.

For example, we might favour the increased use of public transport over supporting car based lifestyles through a multitude of policies and ensuring we do not have contradictory positions on this.

4.5 We will be seeking a clear vision of the system change outcomes we want to achieve that cannot be achieved through one decision or investment, the types of changes that require concerted focus over a number of years to achieve and can only be achieved if contradictory decision are not made to undermine the resolute pursuit of the vision. This approach also requires us to

hold integrity of vision and the flexibility to realise the vision through agile responses to opportunities.

Creating a 'road map' to guide our journey

4.6 Our 'blueprint' will provide the vision for a carbon neutral Cornwall but this will not be achieved in one step, thus creating indicative illustrations of the transformations needed in our different sectors will be important for us to understand in more detail the magnitude of change, the interdependencies between different sectors and changes. It will also demonstrate that a linear route to this outcome is difficult to define exactly, and our map will have to evolve as we make decisions and progress towards carbon neutrality.

4.7 Our emerging Climate Cornwall Carbon Neutral Action Plan sets out the first phase of our journey and is detailed later in this document and in Appendix Two.

4.8 Importantly both the blueprint and road map(s) will help us to appraise our choices when decision making so that we ensure we are also making progress towards our goal, even if this might seem tangential.

Challenges and Opportunities

4.9 All sectors will need to play a significant role in what is required to get to carbon neutral goes beyond the contribution of any single actor, organisation or community. It will require significant changes to the way we do things, from the energy we use, to the products and food that we buy. It will also require leadership at multiple levels, and a new way of thinking. Climate change does not work to organisational boundaries or thinking. It will require decision makers to connect and properly consult with communities, businesses and individuals in ways that previously have not been done, working towards joint solutions that can create the critical mass to create the step change required. This will involve hard choices and understanding of a complex landscape.

4.10 The difficult realities of this transition will need to be addressed. We anticipate the scenarios will show whichever path or approach we take has some clear deliverables and clear challenges about how to achieve these. Electricity will need to become zero carbon, road vehicles will need to be running on near zero carbon, and next to no buildings will be using oil, gas or coal to warm them. Planes are still likely to run on oil, so other sectors will

need to compensate, agriculture will need to reduce fertiliser use, emissions and capture methane.

4.11 We will need to collectively consume less, and the way we manage our land will need to change to absorb more carbon dioxide. There will be a need to build in longer-term perspectives on how we build homes that are more thermally efficient, not building in flood plains and designing roads and transport infrastructure that is climate resilient.

4.12 Not all of these decisions will be popular, and this is why we will be consulting all interested parties, but if we are to be successful, they are unavoidable. We need to ensure a prosperous and sustainable society that recognises individual's needs for travel for work or leisure activities and by harnessing society's appetite for future technological advances carbon neutrality will be easier to achieve.

4.13 It is also important to remember that there will also be multiple benefits to the carbon neutral journey and to do nothing comes at a significant cost, which will be more fully demonstrated through further work beyond this report on the climate change impacts on Cornwall. There will be health benefits from better air quality, warmer homes, increases in walking and cycling and healthier diets. This can in turn reduce health inequalities and lessen the demand on the NHS and social care. The Lancet Commission concluded, "tackling climate change could be the greatest global health opportunity of the 21st century". There is an opportunity to create a more resilient economy through better energy security and there will be opportunities to stimulate the economy with new green industries and practices. These are opportunities that Cornwall is already advancing, and can continue to do so within the wider framework of the carbon neutral journey. According to Office for National Statistics (ONS) figures, the growth in the environmental goods and services sector was 27% between 2010 and 2015, contributing £30.5 billion to the UK economy, and employing 335,000 people (up 10% from 2010)[2]. Recent examples of activity in Cornwall such as retrofitting homes have proven there are positive impacts on the extensive supply chains involving a large number of SME's, which make up the core of the local economy.

[2] UK environmental goods and services sector (EGSS), 2010-2015, ONS, 2015

4.14 ONS also estimated that the UK low carbon and renewable energy (LCRE) economy grew by 6.8% in 2017 significantly outpacing the 1.8% growth of the wider economy. Performance of this sector has been strong over the last decade with the low carbon economy having grown over the period on all three key economic measures of employment, turnover and GVA.

5.0 Cornwall Council's role in moving towards carbon neutral Cornwall

In moving towards a carbon neutral Cornwall key considerations are:

The need for holistic decision-making.

5.1 A comprehensive body of work is beginning to review how a decision-making framework could be developed to crystalize this thinking into future strategy and policy development. It is important to note that in many instances, meeting our climate change and social equity goals are not mutually exclusive, but care must be taken to ensure that any measure is taken to tackle climate change do not disproportionately impact on the more vulnerable members of society. This section of the report outlines the emerging structure and actions identified for this first iteration of the Action Plan.

5.2 **The Council's role as a leader of a whole system approach.** Cornwall Council only has direct control over a small proportion of the total emissions of Cornwall. Its more potent role will be how it works within a systems leadership landscape to enable, influence, communicate and develop asks of Government that collectively will facilitate the journey towards a carbon neutral Cornwall; and drive a conversation with our partners and communities about a strong vision and strategy for our carbon neutral future. The spheres of influence that the emerging Cornwall Carbon Neutral Action Plan is being developed to reflect are illustrated in Fig.5 (below).

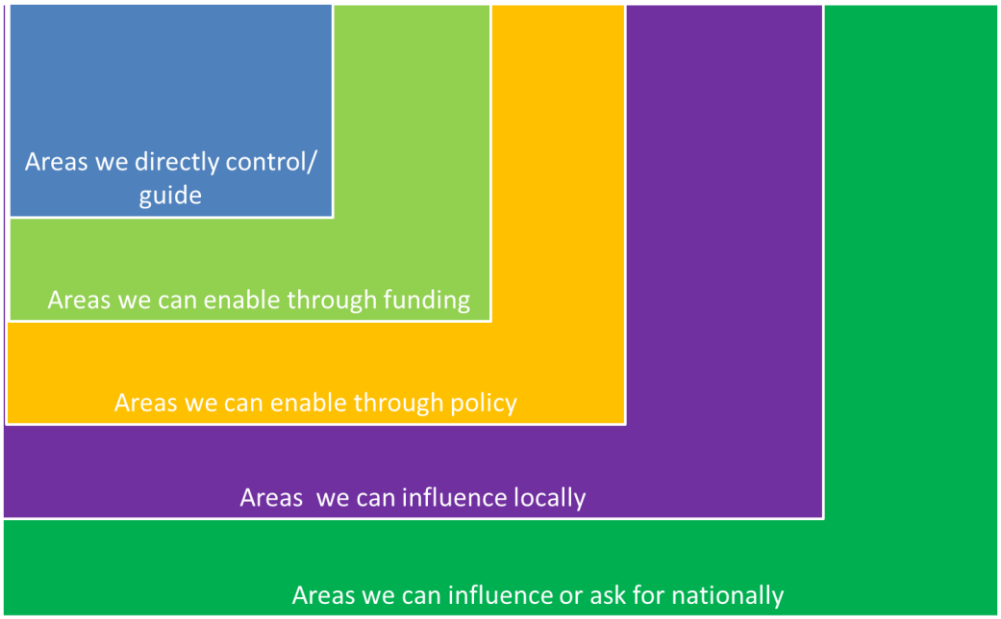


Fig.5: Cornwall Council's spheres of influence

5.3 **The need to align the Council's programmes of actions with is span of influence.** Reflecting these spheres of control, Cornwall Council has three programmes of work are in development, working titles below:

- **Cornwall Council's Operational Plan** (through our direct control of services and guidance of our groups of companies)
- **Cornwall Council's Facilitation Programme** (through our funding, policy and local influence activities)
- **Cornwall Council's Regional and National Programme** (through our regional and national relationships and influencing role)

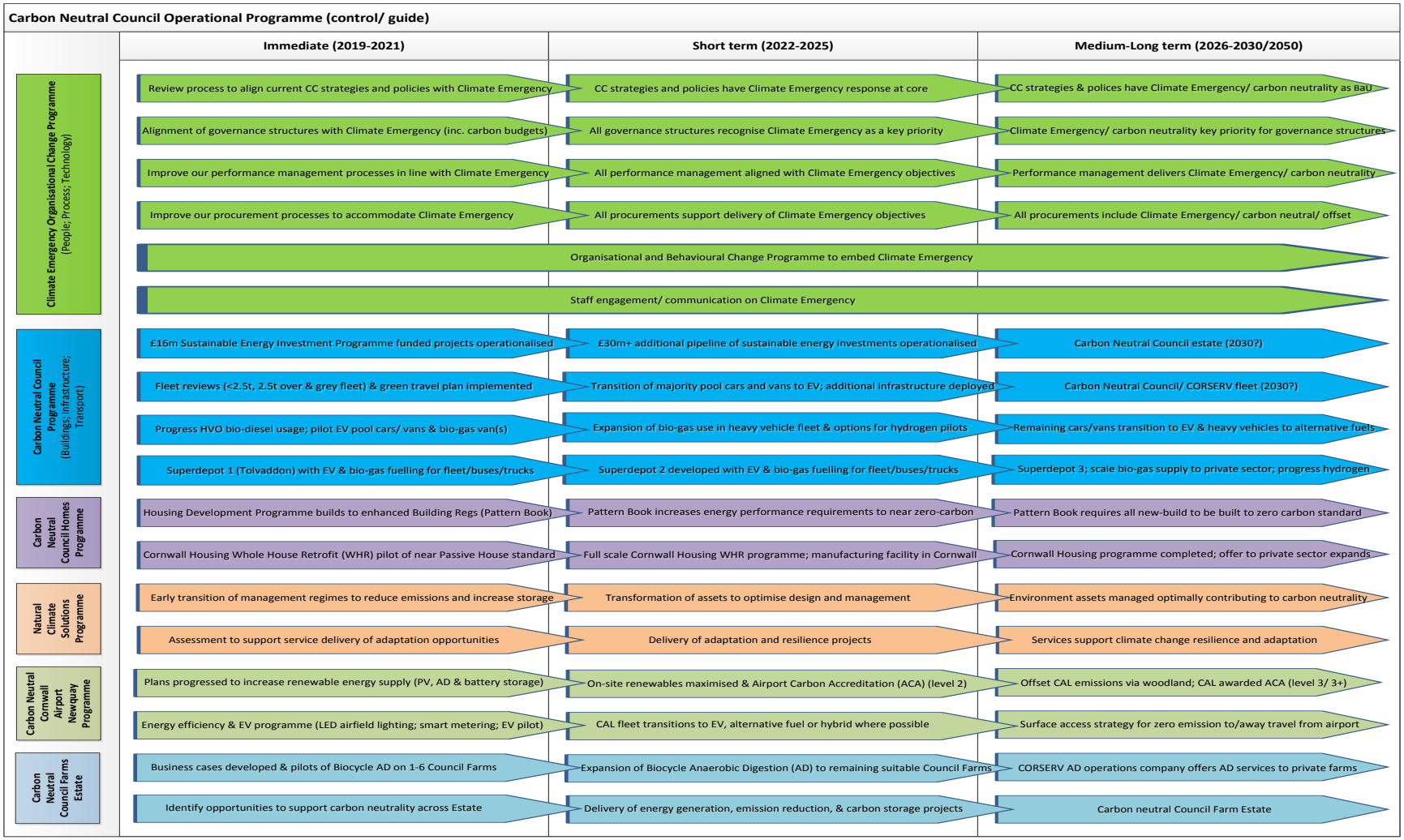


Figure 6: Operational Plan Road Map

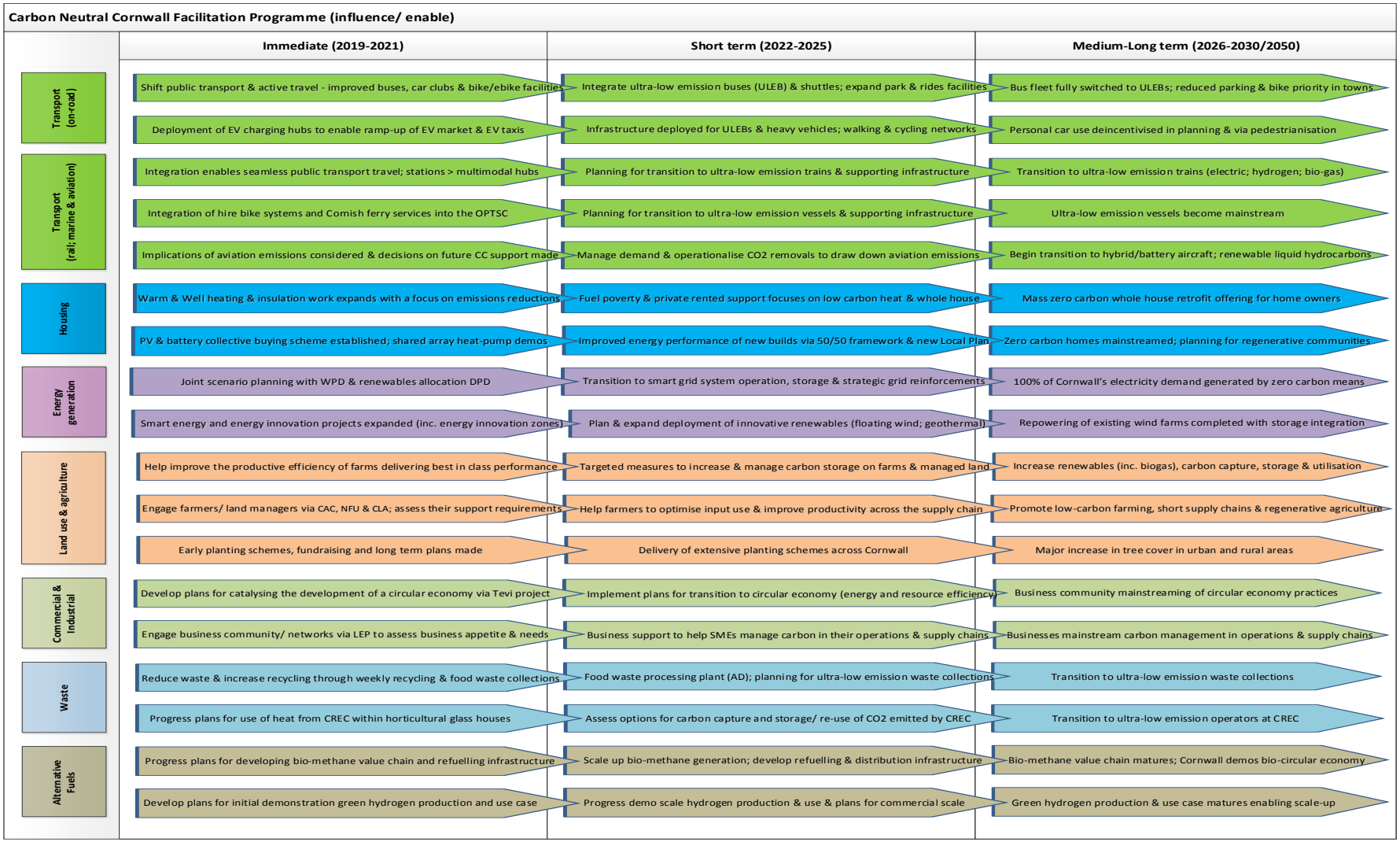


Figure 7: Facilitation Plan Road Map

5.4 The need for a phased and iterative approach to action planning. We are approaching the development of the Action Plan as per the obligation of the Council motion through a series of phases:

- *a discovery phase,* that includes developing our evidence base, the case for change, options for mitigation and potential quick wins, much of which is now complete
- *a define phase*, which includes the development of an implementation programme, wider engagement through the development of a 'Cornwall Conversation' and integrating with the wider systems leadership on the co-design principles required to deliver change
- *a delivery phase*, including large scale mobilisation to deliver projects, drive behavioural change and monitoring and evaluating progress

5.5 Given the scale, complexity and urgency of responding to climate change, it is proposed that the 'Action Plan' is seen as something that is iterative in nature. While setting out the medium to long term roadmap to carbon neutrality, it is also likely that an annual update will be needed, to capture the rapid changes being delivered under the Action Plan, and to ensure it is reflective of the likely rapidly changing national and international context.

5.6 The responsible organisations and individuals charged with delivery will expand and become clearer as the plan develops during the coming months and years, and they will become responsible for reporting progress against an agreed programme. The core team at Cornwall Council will oversee and will report into the appropriate governance structures, although it must be reiterated that the responsibility for a change programme of this scale does not reside with any one individual organisation.

5.7 **Categories of intervention.** In addition to our sphere of influence, we are also aware of the differing types of interventions that are required to both mitigate and adapt to climate change. In broad terms these fall under three categories of intervention that can reduce emissions, increase carbon capture or increase adaptation to the impacts of climate change:

- Ecological - natural climate solutions – delivering environmental growth
- Technological interventions – enabling carbon neutral lives

- Social - cultural and behavioural interventions – choosing carbon neutral lives

5.8 **Balancing interventions.** Our plans must reflect all three types of intervention noted above and ensure we carefully evaluate the balance of what they deliver when, the relative return on investment in both the short and long term as well as their impacts. We also must consider carefully the balance between investing in incremental change to life as usual through mitigation measures and those, which adapt Cornwall to climate change, some of which will require what may be seen initially as radical changes. For example, we need to be aware of the balances between pursuing:

- *Social /behaviour changes* that prevent emissions or substantially reduce them through with mass uptake of small actions can make a huge difference to carbon consumption and emissions very quickly, but are not easy to achieve without specific interventions which could be 'carrot or stick' approaches. These approaches often need substantial political support, policy changes and sustained revenue investments e.g. plastic bag tax, subsidising public transport, charging for waste collection, differential pricing for sustainable options.
- *Major capital investments in infrastructure change*, these investments do provide assured changes to the structure of how we live our lives and societal patterns but have a medium term to long-term delivery timescale, and often require high levels of investment. They often also are subject to diminishing levels of return as infrastructure only has a set lifespan before needing maintenance or replacement, thus further investment and often not form a capital source. E.g. major renewable energy installations, transport infrastructure changes
- *Natural climate solutions*, these interventions are often societally challenging to deliver, as they involve changing land use management or the character of places, however, many provide long term and sustained benefits for relatively affordable investment levels e.g. tree planting, managed realignment in coastal areas, rewilding of previously managed land, no catch/marine protected areas.

5.9 Our programme will need to include a mixed portfolio of investments that will provide a suite of outcomes where our control, influence, magnitude of change and longevity of benefit are all accounted for – all are needed.

6.0 Cornwall Council's Operational Plan

6.1 Key areas that the Council will commit to deliver directly include changes to its governance, infrastructure, strategies and policies, how we work, what we buy and our financial models. Examples will include the development of carbon accounting and a carbon budget, minimum carbon standards on our properties, driving down emissions through our procurement approaches, changing staff working patterns, increasing biodiversity and tree coverage on our land holdings, and appropriate taxation and charges to reinvest into the wider change programme. Specific commitments for actions within the Council's direct control or where we can guide CORSERV or our suppliers will include:

A climate emergency organisational change programme:

6.2 *We will start a process of aligning Cornwall Council's policies and governance to ensure that the whole organisation rises to the challenge of the climate emergency.*

6.3 To make decisions that reflect the declaration of a Climate Emergency the Council will undertake the following actions to ensure all Council and Cabinet decisions are informed by perspectives on the climate change. Our climate emergency organisational change programme will involve:

6.4 Work to align our strategies and policies including:

- *Aligning internal strategies and policies* to ensure alignment with climate change emergency
- *Embedding environmental/ carbon priorities* within the Council's core internal and external communications and narrative
- *Embedding carbon management, and environmental stewardship/ responsibility, within the core values* of the organisation and include within behaviours/ performance management cycles.
- *Alignment of all relevant outwardly focused strategies* to facilitate a co-ordinated approach to reduce emissions and respond to climate risk

6.5 Work to align our governance structures by strengthening our assessments of climate and environmental impacts in all decision making and reporting, with early actions including:

- *Introduction of carbon/ environmental impact and climate risk assessments* procedures to guide Council decision making to be included on the report template – involving the inclusion of:
    - Inclusion of carbon/ environmental impact and climate risk assessments within the Investment and Commercial Board process and assessment templates
    - Inclusion of carbon /environmental and climate risk assessments specifically within our Comprehensive Impact Assessments which will also have an increased application across all Council decision making processes
    - Inclusion of carbon/ environmental impact and climate risk assessments during the discovery and scoping phases of major project development to ensure decisions on whether to implement projects take into account this impact
    - Full review of enabling boards to include assessment of how carbon and wider climate impacts will be reviewed within each board process and relevant template

- *Introduction of climate related metrics into our performance monitoring framework* involving the:
    - Immediate development of a climate and environmental scorecard and wider reporting for the organisation, to be reported up to Council Directors Team and Cabinet level and embedded within service targets. Reporting to include carbon and energy performance alongside paper usage and single use plastic consumption to take a wider view on environmental performance of the organisation.
    - Requirement for all organisational projects to track climate/carbon and environment specific benefits
    - Integration of carbon accounting procedures at both an organisation wide and directorate level expanding on the current approach of compliance driven reporting to a comprehensive approach of carbon accounting and budgeting reporting encompassing energy, fleet, grey fleet and wider travel in accordance with the ISO 14064:1 reporting standard.

6.6 Work to improve our procurement processes to ensure that our suppliers support our carbon neutral ambitions through:

- *Including an agreed sustainability/ environmental statement* within its tender documents, which will be provided to suppliers to ensure they prioritise sustainability within their proposals. Work to agree percentage weighting of supplier environmental performance in our selection process
- *Reviewing the carbon footprint of materials / products / services we procure* and to identify options to reduce carbon emissions from the Council's supply chain

6.7 For example, we will consider prioritising suppliers for future school transport contracts based on the emissions performance of the vehicles they use. This would increase the cost of school transport but take some of the most polluting vehicles off Cornwall's roads improving air quality around schools as well as helping us become carbon neutral.

6.8 The Council is a contracting authority and is required to comply with both its own Contract Procedure Rules and (where contracts are over the relevant value threshold) the requirements of the Public Contracts Regulations 2015 (SI 2015/102) ('the PCRs') which in turn implement Directive 2014/24 on public procurement and repealing Directive 2004/18 (the 2014 Public Procurement Directive).

6.9 The Public Services (Social Value) Act 2012 imposes a legal duty on the Council to ensure that where the Council is carrying out a procurement to consider how what is to the proposed might improve the economic, social or environmental well-being of the relevant area and how, in concluding the process of procurement, the Council might act with a view to securing that improvement. When considering the benefits it is important that only matters that are relevant to what is to be procured and doing so, the Council must consider the extent to which it is proportionate in all the circumstances to take those matters into account. Clearly that needs to be considered in the context of the Council declaring a Climate Change Emergency and the statutory framework referred to above.

6.10 In addition to the powers under the Social Value Act 2012 referred to above Article 70 of the 2014 Public Procurement Directive provide that contracting

authorities may include special conditions relating to the performance of a contract, provided that they are linked to the subject matter of the contract and indicated in the call for competition or in the procurement documents. These conditions may include economic, innovation-related, environmental, social or employment-related considerations. The requirement that special conditions are linked to the subject matter of the contract would appear to prohibit requirements that relate to the contractor's business as a whole.

6.11 Any work to improve the Council's procurement processes will need to take into account the requirements of the Council's Contract Procedure Rules, the PCRs, the 2014 Public Procurement Directive, Social Value Act 2012 and any other relevant legal framework applicable at the time.

A carbon neutral Council programme:

6.12 *We will demonstrate leadership through ensuring that Cornwall Council and CORSERV operations will be carbon neutral by 2030.* Our carbon neutral Council programme will involve.

Delivering a carbon neutral estate by 2030:

6.13 *Initially delivered through an investment of a significant proportion of Cornwall Council's £16m Renewable Energy Investment programme into further deployment of renewables across our estate*, increasing our installed capacity of renewable energy from approximately 8MW to over 20 MW, enough to power between 3,500 and 4,000 homes, or over a quarter of Cornwall Council's current electricity demand.

6.14 This investment will also deliver operational cost reductions of circa £2.8m to the Council over 25 year lifetime projects and an additional income of an estimated £1m+ per year in PPA and export payments. A pipeline of a further £28m of projects is under development.

6.15 *Review of all Cornwall Council office estate assets (within the Council's existing 'Corporate Landlord' Property Transformation Programme)* to understand current carbon / energy performance and to underpin a programme of improvement works to improve insulation/ carbon efficiency of this estate. Pilot offices to be selected for carbon efficiency transformation.

6.16 *Plans are already being developed to switch Cornwall's 54,000 street lights to low energy LED smart street lights.* This could deliver annual carbon saving of 4500 tCO2 equivalent to almost half of Cornwall Council's current estate carbon footprint as well as annual savings of between £900k-£1m. The estimated capital cost of the project is between £12.4m-£15.76m.

Accelerating the transition of Cornwall Council/ CORMAC's fleet to ultra-low emissions vehicles by 2030:

6.17 We will 1000 vehicle fleet over to ultra-low emission vehicles expanding CORMAC's existing plans to move 10% of their fleet by 2023 - realising a 100% switch over by 2030. This work will be accelerated further by early retirement of diesel pool cars, replacing these with electric pool cars.

6.18 We will develop electric vehicle charging for CORMAC's van fleet and local electric buses and bio-methane refuelling hubs for CORMAC heavy vehicles and buses, at up to 3 strategically located 'super depots' across Cornwall. A provisional cost estimate for delivery of the first 'super depot' facility at Tolvaddon is £6m, which would include the electric charging facilities as well as service facilities for CORMAC and bus operators (see Facilitation programme).

Figure 8. Commercial scale bio-methane refuelling station

We will generate carbon neutral fuel source through both the development of initially bio-methane and in time hydrogen fuelling:

6.19 Bio-methane will be generated locally from CORMAC grass cuttings, Council Farms, and Cornwall Airport Newquay as well as working with private sector partners. Small pilot refuelling stations could be deployed initially with a small number of vans operated by CORMAC. Longer term these stations could fuel buses and hauliers

We will make our transport infrastructure and transport offer increasingly sustainable

6.20 Measures to under our direct control to make transport more sustainable would include:

- All future major transport projects to have a carbon impact assessment included in their business case
- Carbon reduction percentage: ensure that the St Austell A30 model of green infrastructure with biodiversity net gain is built in as standard to every transport capital scheme (including construction of cycle and walking), with a percentage of the budget of each project dedicated to the delivery and maintenance of green carbon offsetting infrastructure
- Cornwall Council to invest and own an increasing part of the public transport fleet and network, e.g. operating Ultra Low Emission buses, to acquire greater control of our transport policy and operations
- Replacing Council owned diesel buses servicing the Truro Park and Rides with zero emission buses: Introducing zero emission electric buses to replace the current park and ride buses. This has been costed at between £3.5m-£4.6m (buses and on-ward travel and depot charging facilities).

Figure 9. Flash charge electric buses could recharge whilst waiting to load passengers at Park and Rides ensuring continuous operation.

- Electric buses could be recharged by electricity generated on site with solar ports and battery back-up at Langarth Park & Ride.

Figure 10. Potential deployment of initial solar car parks at Langarth Park and Ride.

We will reduce emissions through encouraging and enabling staff to adopt sustainable practices by:

- *Strengthening flexible working within the organisation*, enabled by the Working Differently Programme, but underpinned by clear targets and leadership team sponsorship.

- Corporate travel plan: ensure sufficient infrastructure measures and incentives (in addition to demand restraint) to support staff modal shift.

We will develop a green travel plan for staff.

6.21 This plan will promote:

- Optimum working locations for staff to minimise journey time (encouraging home and local working)
- Opportunities for more sustainable travel between offices, to include ultra-low emission pool cars, bike/ ebike hire schemes and business mileage incentives;
- Options around managing staff car parking to encourage usage of alternatives to their own petrol/ diesel cars;
- Subsidising public transport use such as free use of park and ride buses for travel between offices.

6.22 *Rolling out a climate change skills / learning and development programme for staff* to improve understanding of carbon and wider environmental context. The skills programme will include:

- Encouraging personal responsibility through the support for the Climate Vision 10 Pledges and roll out of a Green Champions Network.
- Base level training for all employees
- More targeted/ intensive training for organisational decision-makers to enable them to adequately assess carbon impacts in their decisions
- Immediate inclusion of 'climate change response' as one of the systems leadership challenges in the 2019/20 Leading Differently Programme

6.23 *We will deliver a cultural and behavioural change programme,* focused on enabling staff to reduce their carbon impact while at work and also reduce their carbon impact in their home lives. Recommendation that this is a Cornwall Council and Group of Companies behavioural change programme to ensure we are able to demonstrate leadership in this area for Cornwall.

Reduce the carbon impact of Cornwall Airport Newquay by 2030:

6.24 *We will develop a number of investments that will contribute towards* lessoning the carbon impact Cornwall Airport Newquay's operation (i.e. emissions excluding flights). Potential interventions could include:

- *Anaerobic digestion to process the grass cutting from Cornwall Airport Newquay* with the potential to save 2,654 tCO2e over 10 year methane life calculation. The Opex costs would be similar to the current CORMAC

gas management routine and provide substantial zero-carbon gas for heating and vehicle use.

- *Switching to LED airfield lighting* would reduce the airport's electricity consumption by 4% and its operational carbon footprint by 2%.
- *Developing a new surface assess strategy* that encourages passengers to use sustainable transport modes when travelling to and away from the airport.

A carbon neutral Council Farms Estate:

6.25 *We will make our Council Farms exemplars in low carbon and regenerative agriculture.* Delivered through the new Council Farms Strategy – work is being commissioned to explore the potential for our Farms Estate to contribute to Cornwall's goal of becoming carbon neutral and delivering environmental growth, while remaining an important route into agriculture for new entrants to the industry.

6.26 There is considerable opportunity for innovation on the Council Farms Estate, particularly through changing agricultural practises that can reduce emissions production and increase carbon sequestration through good soil management and other natural climate solutions such as tree planting, hedgerow and wetland management and creation.

6.27 We will explore the potential of the Council Farms Estate to play a significant role in delivery of carbon neutral ambitions we will commission a comprehensive assessment of the opportunities and investment required to inform the Business Plan for the delivery of the new Council Farms Strategy.

6.28 We will explore opportunities for energy generation on the Council Farms estate, through established technologies such as wind and solar and more innovative renewable generation approaches such as:

- Delivering a pilot of anaerobic digestion on 6 pilot farms which will demonstrate how we can develop bio-methane supply chain using Council Farms.
- Considering options for expanding the programme to install anaerobic digestion deployment on up to the full 58 dairy farms on the Council Farm estate. By 2030 emissions reduction per farm could be 5906 tCO2 giving a total saving 342,500 tCO2e for 58 farm estate

Cornwall Council's Environmental Growth Assets and Services - generating natural climate solutions:

6.29 *We will review our management of our environmental assets to optimise their role in creating a carbon neutral Cornwall.* The Council's Environment Service manages a range of assets and provides advice and guidance on many projects and initiatives across Cornwall. There are some specific opportunities for environmental growth through natural climate solutions which we will develop and deliver:

6.30 *Reducing emissions, increasing carbon* sequestration – we will work with Cormac to review how we manage our environmental assets to optimise the balance between management interventions that generate emissions and the opportunity for carbon sequestration through increased vegetation growth or changed land management patterns.

6.31 *Making space for nature* - where appropriate we will extend the implementation of the approaches delivered through the Green infrastructure for Growth programme.

6.32 *Biodiversity Net Gain in Development* – we will work with the Planning Service to introduce the requirement for 'net gain' in biodiversity in new development.

6.33 *Landscape Character Assessment* – we will review and refresh our assessments to provide the context for the character and capacity for landscape change to deliver our environmental growth and carbon neutral ambitions sensitively to our heritage and landscape.

6.34 *Accessing nature and active travel* – we will establish how we can increase the use of the Public rights of Way Network for active travel and increase the connection and understanding residents have with nature through their ability to access natural spaces in urban, rural and coastal areas. The first step for this project is a mapping exercise to inform the Accessing Nature Strategy delivery.

6.35 *Natural flood management* – we will identify where natural flood management approaches can be used to increase carbon sequestration and deliver improved catchment management. This will be initiated by an opportunity mapping exercise.

6.36 *Coastal management* – we will identify and support where there are opportunities for carbon sequestration in coastal areas and where management of natural processes can aid flood defence and reduce coastal erosion.

6.37 *Flood risk reduction* – we will work with the Environment Agency and allocate capital match funds to increase the leverage of national funds available to manage flood risk in communities across Cornwall.

6.38 *Heritage* – we will work locally and with Historic England to explore how to appropriately adapt our heritage buildings to reduce carbon emissions and how our heritage coasts and important landscapes can adapt to climate change.

6.39 *Climate impacts* – we will ensure that we are managing the variety of increasing impacts of climate change on our assets to keep communities safe, to support their ambitions for change and deliver long term adaptation outcomes.

6.40 *Sharing our knowledge* – we will provide capacity to share our learning and approaches with others, such as Town and Parish Council's and community groups.

Ensuring sustainability is prioritised in our capital projects:

6.41 *We will demonstrate leadership through ensuring that climate impacts are considered when we lead capital builds by:*

6.42 *Including the adoption of Net Zero Buildings Commitment within all capital build project assessments.* Applying the steps to achieving net zero buildings in line with the UK Green Business Council's framework in order to ensure sustainability of project:

- Mandating projects to be built to a certain standard.
- Voluntarily conduct sustainability/ carbon impact assessments to consider whole lifecycle carbon impact of construction/ delivery as well as the in-use carbon footprint once buildings/ projects are developed and operational. Making decisions on whole life costs/ carbon impacts rather than solely on immediate capital costs. Recognising that the costs of sustainable developments/ materials are often higher on implementation but lower

long term cost in terms of maintenance and energy will require major cultural shift in organisational decision makers to prioritise sustainability against cost;

- Consider how to reduce travel requirements and promote sustainable travel alternatives when planning major capital projects
- Consider options for off-site carbon reduction via local offset schemes such as the Woodland Carbon Code

6.43 *Cornwall Housing pioneers Whole House Retrofit of social homes:* Working closely with Cornwall Housing we will demonstrate how Cornwall's existing social homes can be made near zero carbon.

Figure 11. Whole house retrofit example

6.44 Cornwall Housing has an estate of 10,285 homes. Work on whole house retrofit suggests that economies of scale could reduce costs by 2025 over 50%. Considering Cornwall's housing stock we will need investigation to ensure the most appropriate retrofit approach is adopted.

6.45 In the short term, there is the possibility to secure part funding for retrofitting 200+ social homes to near zero carbon standards through BEIS' forthcoming Whole House Retrofit competition. Cornwall Council will apply to secure funding from this competition working with our ECO Concession partner SSE Energy Solutions. This project will build on the BRE-led Home Works Each Home Counts BEIS pilot currently ongoing in Cornwall.

Cornwall Council pioneers building zero carbon council homes:

6.46 *We will demonstrate leadership demonstrating zero carbon council homes.*

6.47 *It has been estimated* that zero carbon social homes could be built at scale for in the order of 20% extra per home over and above building to current building regulations. A social housing provider in Wales is already piloting these homes. Building 1000, such homes would avoid adding an additional 80

ktCO2e of carbon emission - equivalent to about 2% of Cornwall's annual carbon footprint.

6.48 These homes also reduce energy consumption by around 60% saving the average household over £600 per year. We will also be able to develop an industry building zero carbon homes in Cornwall using modern methods of construction future proofing and safeguarding jobs in our construction sector.

Figure 12. Social homes being built as per SPECIFIC 'buildings as power stations' for Active Homes Neath development in Wales

7.0 Cornwall Council's Facilitating Programme

7.1 Specific commitments for actions where we can influence wider change in Cornwall will include:

Reducing Cornwall's transport emissions:

Making Cornwall a place where it is easier and more affordable for the public to avoid the need for car journeys.

7.2 Transport is a crucial aspect of the Climate Change emergency as this sector is responsible for more than a quarter of Cornish GHG emissions. One of the six core goals in "Connecting Cornwall 2030", our current Local Transport Plan, is linked directly to managing the impact on transport on the climate and there are relevant policies throughout the strategy around modal shift and protecting our environment, which all play a key role.

7.3 Increasing the mode share of active travel in Cornwall is supported through the identification of town wide walking and cycling networks and our ambition to deliver transformation cycle networks through funding commitments such as the recently announced Highways England Designated Funds programme. Major construction schemes already include measures to offset the impact of

transport infrastructure on the environment by including green infrastructure to achieve biodiversity net gains such as for the St Austell A30 link road. In addition, building on the success of Cornwall's One Public Transport programme in increasing bus patronage and reducing emissions from buses – we will consider:

- *Reviewing the Local Transport Plan for 2021 and its investment priorities.* Road, public transport, air and active travel modes funding split will be reviewed and rebalanced regarding carbon-neutrality objectives.
- *A review of each Town Transport Plan to identify solutions to reach carbon neutrality.*

7.4 *Developing a Cornwall Supplementary Planning Document and Highway Design Guide* to evolve to support a more sustainable infrastructure towards more modal shift and carbon neutrality (e.g. introduction of more electric vehicle and autonomous vehicle infrastructure or reduction of car-centric streetscape).

7.5 *Delivery of a Cornwall-wide walking and cycling trails network including town-wide cycling networks.*

7.6 *A new subsidy system to enable more affordable bus trips* (aligned with current European and London fare standards) and increase dramatically modal shifts. As well as potentially extending free bus travel from pensioners to also include children and young adults.

7.7 *Delivery of more park and ride facilities to support public transport uptake, reduce congestion and pollution and increase high street vitality.*

7.8 *Integration Cornish ferry services into the One Public Transport* integrated transport system to enable seamless public transport travel and increase the uptake on the network.

7.9 *Reduce emissions further by switching to a zero emission bus fleet by 2030 and investigate options for zero emission trains.* We will work with operators review options for switching to zero emissions buses across all routes. There may be options for electrification of some of the shorter routes however in order to transition longer distance bus journeys Cornwall Council will work with bus operators to enable them to switch to zero emission buses by 2030.

We will enable this by providing alternative fuelling infrastructure and financial support to bus operators to switch their fleets over to ultra-low emission buses. Options include bio-methane buses, hybrid buses and in the future hydrogen buses.

Enabling residents and businesses to switch to ultra-low emission vehicles.

7.10 Cornwall Council is working with partners to use EU funding to increase the number of electric vehicle charging points by a minimum of 66 over the next 3 years from around 115 public charge points currently (44 of which have been deployed by Cornwall Council) to over 180 charge points.

Figure 13. Image of the UK's first electric vehicle charging forecourt with multiple rapid charge points deployed together and battery back-up to reduce pressure on grid.

7.11 Whilst Cornwall already has the third highest deployment of charge points by any local authority our charging facilities are still insufficient both in respect of geographic coverage and charge speed. In order to make electric vehicles a viable option for many drivers our charging capacity needs to be enhanced. We will investigate opportunities to deploy electric vehicle recharging forecourts along Cornwall's arterial routes (A30, A38 and A39) and in our major towns which would substantially improve charging facilities for residents, businesses and our visitors.

7.12 *Building a sustainable bio-methane supply chain:* local derived fuel generated by farmer and land managers across Cornwall helping us transition towards carbon neutrality with our farmers generating their own fuel on-farm to replace the red-diesel used in their farm machinery and vehicles. This fuel could also potentially be used as heating fuel therefore replacing oil and LPG on-farm and in off-gas rural areas. On-farm bio-methane production and use is being showcased by the ERDF funded Energy Independent Farm project.

Figure 14. Bio-methane tractors deliver reduced operating costs, less emissions and same power as diesel tractors with farmer begin able to generate their own fuel on-farm.

7.13 We will explore opportunities to work with existing anaerobic digestion operators who are processing food waste when Cornwall Council provide food waste collections.

7.14 We will also explore opportunities to develop Cornwall's first commercial scale bio-methane refuelling station could fuel 50 heavy vehicles (CORMAC, buses and trucks) per day. Fuelling stations could be located in the Camborne-Pool-Redruth, Bodmin and Launceston areas where there are high volumes of truck movements. Plymouth City Bus are operating Bio-methane buses and haulage companies are currently running dual-fuel gas/diesel trucks into Cornwall but lack of refuelling infrastructure to refuel these trucks on gas within Cornwall.

7.15 <u>Piloting hydrogen refuelling:</u> Over the longer term hydrogen refuelling stations could be developed along major arterial routes and in urban areas. Initially small scale hydrogen refuelling stations could be developed. Currently stations are available that could provide fuel for up to 16 light vehicles (cars/ vans) per day at a development cost of c£1.3m and £60k per year running costs per station. A station could be developed potentially working with a university partner.

Figure 15. Image of small scale hydrogen refuelling station

Developing a Forest for Cornwall

7.16 *We will develop a mass woodland tree planting programme, once fully developed a Forest for Cornwall covering approximately 8000 hectares (To be confirmed by further calculations), or about 2% of Cornwall's land mass.*

7.17 Natural climate solutions offer an important opportunity to deliver environmental growth in Cornwall that will both mitigate and help us adapt to climate change. Our first flagship project is to deliver a substantial increase of

canopy cover in Cornwall, through the planting of trees on our streets, in our hedgerows and through the creation of new woodlands and forested areas.

7.18 Over time this forest would sequester potentially in the order of 1% of Cornwall's annual carbon footprint (2016). As our carbon footprint decreases to near zero levels this carbon draw down will become critical. The rate of drawn down increases as the trees grow; making it imperative that we plant the Forest for Cornwall urgently as net emission reductions are not likely to be accounted for within the first five years according to the Forestry Commission.

7.19 Calculations on the cost of the headline Forest for Cornwall proposal and sub-schemes – such as through the Registration Service are currently being undertaken. Our early estimate is the cost for delivery of the 8000ha could be in the region of £25-30m when all costs are factored in.

7.20 Additionally bids to Government supported national tree planting schemes are also being prepared. We will also consider developing a voluntary carbon offset scheme for Cornwall to help fund tree planting through the sale of Woodland Carbon Units to organisations wishing to evidence carbon neutral operations; this could involve partners such as the Local Nature Partnership, landowners, the National Trust, the Duchy, South West Water and the Forestry Commission.

Supporting householders and landlords to reduce emissions from homes and community buildings:

7.21 *We will support residents, landlords, and community buildings to reduce emissions in our homes through.*

Exploring opportunities for encouraging solar panels installations on suitable roofs in combination with energy storage solutions:

7.22 <u>Models under consideration by the Council include:</u>

- *Council supported collective buying scheme for solar.* This could be modelled on the 'Solar Together' schemes operated by local authorities elsewhere. A Cornwall based 'Solar Together' scheme could build on the

work of the successes of the 'Cornwall Together' collective switching campaign.

- *Community energy financing loans for renewables building on our 'community energy revolving financial vehicle' and/ or a 'carbon neutral community grant competition'* targeted at supporting community carbon neutral projects/ buildings.

Exploring opportunities for delivering a whole house retrofit programme:

7.23 Building on our work with our Cornwall Housing model and the supply chain has been developed. By offering loan funding for Whole House Retrofit and other home energy improvements to private sector landlords to help tackle the approximately 4500 private sector rented homes in Cornwall which do not meet the Minimum Energy Efficiency Standard (MEES) building in the experience of Cornwall Council's Private Sector House team led BRE-funded MEES pilot.

Supporting the transition to zero carbon electricity by:

7.24 *Working with Western Power Distribution (WPD) to strengthen the distribution grid and support the transition to a smart grid* capable of meeting the requirements of a carbon neutral Cornwall.

7.25 *Supporting emerging renewable technologies such as floating offshore wind and deep geothermal* to mature and provide zero carbon power.

7.26 *Supporting the transition of Cornwall's food and farming towards an exemplar of low carbon and regenerative agriculture*. Working with the Cornwall Agri-Food Council, the NFU, and the farming community help reduce and drawdown down emissions from agriculture, build resilience and increase productivity from the sector.

7.27 Working *national strategies and frameworks, the council can also influence the definition of local priorities in areas such as energy, climate, transport, planning, waste, environment and maritime.* The Council can act through its:

- Planning function put in place policies that will facilitate a move towards zero-carbon homes and generation, and also has levers over public transport and encouraging modal shift, encouraging education and promoting the circular economy.

- It's role working with the Cornwall and Isles of Scilly Local Enterprise Partnership to develop a Local Industrial Strategy that promotes opportunities to deliver productivity improvements for Cornwall's economy through Clean Growth.

7.28 *The role of the Council to influence partners locally is of fundamental importance, with its relationships with town and parish councils, voluntary and community groups, universities and other major organisations all being critical.* Working across sectors through combined leadership will form a key part of the transition, potentially creating critical mass in the transformation towards a low carbon society.

7.29 *The role of role of national Government will be important in unlocking our aspirations.* While local system leads should not be defined by Government pace or ambition, there are significant areas such as access to 'green' finance, permissive and supportive legislation that is supportive of areas such as clean generating technologies, higher quality buildings (including building regulations) and mass retrofit. Additional areas of focus are unlocking the constrained grid system, redefining transport and energy infrastructure, and supporting curriculum and skills programmes. Electrification of the railways and the potential to develop a climate levy are all areas that we will push Government hard on to realise our aspirations.

Education for a climate emergency

7.30 *Responding to the climate emergency and promoting sustainable development is the shared responsibility of us all.* Education is of fundamental importance in enabling an understanding of the local and global effects of climate change. Education for sustainable development empowers learners with the tools and knowledge to act effectively to mitigate the effects of climate chaos. Schools, further and higher education settings present opportunities to engage beyond the immediate student cohort into families and communities using the three main areas of action:

- Curriculum - to inform
- Campus – as venues for family and community-based public engagement events
- Community – providing an informed network to support action

7.31 *We know that the Youth Parliament has climate change as a top priority.* We also know that the effects and predicted changes as a result of climate change are causing distress, or 'eco-anxiety', among young people, in terms of anxiety, stress and depression. The danger is that apocalyptic dialogue leads to fear and inertia. This is true for us all not just young people.

7.32 *Climate change is also a social issue.* Child poverty rates are rising as is the number of in work families seeking support from Food Banks in Cornwall. We must ensure that a call to action considers social justice and does not become divisive. Consider that some carbon reduction pledges, such as 'reduce number of flights being taken', can alienate those who are not in a position to take a flight. Not all members of our community have the privilege of making eco-friendly consumption choices because they are often out of reach of their income or the products they can afford are often so at the expense of the environment and humanity.

7.33 *Young people are responding through activism, demonstrated through the recent climate school strikes.* Based on recent discussions with education leaders, including Cornwall Association of Secondary Heads (CASH), Cornwall Association of Primary Heads (CAPH) and routine Head Teacher and Governor information sessions, the Council's declaration of climate emergency have been received positively. Schools in Cornwall have a good track record of promoting sustainability in the delivery of the curriculum and engaging with initiatives such as 'Eco-schools' and the Eden Project's schools programmes.

7.34 There is an acknowledgement of the need to build picture of what actions schools are taking to reduce their carbon footprint, what is currently on offer to them to enhance this and critically, how they can access investment to improve buildings and heating systems, which will make a bigger, quicker impact than behaviour-based initiatives. There are 63 maintained schools across Cornwall where the Council has direct responsibility; a further 213 are no longer part of the Council's estate. Consideration is needed regarding carbon-reducing investment for all schools to benefit from energy and cost-reduction options. Schools are willing to participate in a survey in the autumn term that will help build a picture of existing carbon reducing activity and identify three priorities for further action. Initial feedback suggests the following:

7.35 **Campus:** Existing school buildings to be made energy efficient. New builds to use sustainable materials and embed green technologies to reduce carbon footprint, increase efficiency and be future proofed for use. A detailed analysis of each site would be needed to identify where carbon-reducing interventions could be introduced.

7.36 **Curriculum:** Schools felt that they are already embedding Education for Sustainable Development into their curricula and are willing to work together to improve and learn from each other. There is potential for this learning to be disseminated to the wider community and inform an action-based behaviour change programme for Cornwall.

7.37 **Community:** Lander School have initiated a Sustainability Conference in the autumn, having gained support from 18 additional secondary schools, to respond to the youth climate strikes and generate pledges/charters for schools and families. CAPH have suggested that schools in Cornwall who want to demonstrate on Environmental Change in September, have an Arts based virtual voice, led by the Council. The suggestion includes Cornwall Council providing an easy to use portal, which can then be shared locally and nationally to enable young people to protest locally rather than traveling to London and would instead upload evidence of their environmental and sustainable development works as well as it being a platform for their voice. There are several advantages to this over attending demonstrations in London, not just the safety of students, but more of an educational slant on activism, in the form or art, drama, performance poetry etc., and of course the carbon savings in not taking coach loads of students to London and back.

7.38 **Co-ordination:** galvanising action on this scale, by working with all education settings, is a significant task requiring dedicated resource. This could build on existing skills and expertise in the Education Service, and also facilitate join up between curriculum, careers and the Enterprise Business Partnership. There are considerable resources available to schools via a range of local and national organisations including carbon-footprint tools and a range of national and international competitions and awards that could position Cornwall as a leader in galvanising the education sector and young people to make a step change in leading behaviour change in their communities. Whilst schools are willing to participate, they do not have capacity, or remit, to work on a Cornwall-wide plan.

7.39 The Leadership Board is keen to promote youth engagement and participation in Cornwall's plans having heard from young people earlier this year. Discussions are already taking place with youth groups and the Council's planning team to enable young people to shape the Vision 50:50 Plan as part of the Youth Engagement Guidance implementation. This could also act as a mechanism for integrating the climate emergency ambition.

Planning for a climate emergency

7.40 As mention earlier in the report Cornwall Council are focused on a refresh of the Local Plan. Our plan is to respond to the Climate Change Emergency through the production of the Climate Change Development Plan Document ("the Climate Change DPD") to complement and strengthen the delivery of the policies in the existing Local Plan.

7.41 This includes guidance on:

- Delivery of renewable energy installations
- Delivery of environmental growth – net gain, forest for Cornwall, coastal change
- Delivery of carbon neutral homes

7.42 Whilst the Vision 50:50 proposals mentioned earlier in the report are focused on a refresh of the Local Plan, our plans to respond to the Climate Change Emergency through the production of the Climate Change DPD to complement and strengthen the delivery.

8.0 Community engagement and empowerment

8.1 Stakeholder and community engagement will be integral to success of the Action Plan. Starting a Cornwall Climate Conversation will help us strengthen and develop the solutions required that will require buy-in and leadership from us all.

8.2 Public, stakeholder and community engagement will be integral to success of the Action Plan. Starting a Cornwall Climate Conversation will help us strengthen and develop the solutions required that will require buy-in and leadership from us all.

Cornwall's Climate Conversations

8.3 We intend to facilitate a long-term programme of 'Cornwall Climate Conversations' that will allow us to capture the voice of Cornwall on an issue that impacts on us all. This will build on the stakeholder and resident engagement during the discovery phase and will continue throughout the define phase and into the delivery phase and will include conversations stakeholders/ residents with expertise across a range of fields to enable the co-creation of solutions to feed into the next stage of the Action Plan. It is expected regular and ongoing dialogue will be needed across Cornwall as we strive for our carbon neutral goal, as it is essential we make best use of the skills, talents and creativity within our communities to enable this monumental change.

8.4 We will utilise existing platforms and networks, such as our resident's panel, community network panels, the youth parliament, and our scrutiny process to ensure that solutions come from all sections of society. This will also dovetail into other initiatives such as the Vision 50:50 spatial planning engagement programme. We are also proposing to have an annual event of interested stakeholders from across our communities to engage in a deliberative forum to develop the ideas and solutions to the complex and systems based challenges that we all face.

8.5 We will also enhance our online engagement and will look to develop additional networks to engage with new audiences. We will also continue the direct conversation with residents we started at the Royal Cornwall Show and 19 town centres during the discovery phase.

8.6 We will aim is to ensure we capture views from and provide opportunities to contribute for people and communities across Cornwall. We will ensure that the Cornwall Conversation provides a genuine, deliberative, inclusive, challenging and open debate on what the options and solutions are through co-design, collaboration and trust. The Neighbourhoods Overview and Scrutiny Committee (NOSC) will be involved in advising on the precise nature of the Council's engagement with residents.

Empowering Communities and working with partners

8.7 How we with town and parish Council's will be an area of work considered in both Cornwall Councils Operational Plan and Facilitation Programmes,

ensuring that the right capacity and skills, communication channels, levels of decision making and resources are available to support the transition to a carbon neutral society.

8.8 Working with the Cornwall Association of Local Councils (CALC) and others we will seek to identify how we can work together optimally on this challenge, reflecting the wishes of the communities and residents we serve. Given the level of interest, that there has been, with a large proportion of town and parish councils declaring climate emergencies, this will be a crucial partnership in ensuring that we can work towards our wider Cornwall ambitions.

- Emergency plans production
- Facilitation Fund for communities – co-designed and locally managed

8.9 Engaging experts: We will continue to build the relationship we have with the academic institutions located or working in Cornwall to provide evidence and expert advice on all aspects of the work programme of climate change. Engagement conversations have already been conducted at varying scales with the University of Exeter, University of Falmouth and University of Plymouth. Further engagement is planned with the Cornwall College and Truro and Penwith College.

9.0 Cornwall Council's Regional & National Programme

Regional Collaborations:

9.1 Working with other Local Authorities across the South West will be crucial if we are to deliver against all of the aspirations within the motion, and in the coming months we will be continuing to seek dialogue with our neighbouring authorities and those throughout the UK who have also declared Climate Emergencies. There is already a growing appetite amongst our regional authorities to work together on this agenda, and we will support the principle that the climate change work should be one of the key priorities for the wider South West. We have a series of existing partnering mechanism that we will use to enable these conversations and work streams.

Asks of Government

9.2 Cornwall Council will engage Government to call for increased ambition from national Government in order to help Cornwall achieve our carbon neutral ambitions.

9.3 The Council's ambitions to support Cornwall to meet the target of Carbon Neutrality in the coming decades, is absolutely dependant on Government action to support the actions needed. New legislative, regulatory, policy and financial conditions are required to reform the UK system to a carbon neutral society with a prosperous economy and healthy environment.

9.4 The public pressure that has resulted from the publication of the climate science from the IPCC and supported by the Committee on Climate Change is creating significant 'new burdens' on local authorities, it is customary for Government to consider financial support for local authorities in this situation, and we will be discussing with other local authorities and Government to explore the potential for support.

Our asks of Government will include:

9.5 Government giving greater priority to addressing the Climate Emergency:

- *Put climate change impact at the heart of government policy, regulation and investment decisions*, including setting explicit decarbonisation objectives for Ofgem.
- *Announce a commitment for UK to reach at least 117 GW renewable electricity generation capacity installed by 2030.* This could be achieved with continued support for offshore wind and the removal of the artificial barriers to onshore wind and solar. Capitalising on Cornwall and the wide UK's untapped solar power potential, reviving the UK's onshore wind industry and further harnessing the UK's world leading offshore wind resource by unlocking floating offshore wind and well as fixed offshore wind opportunities.
- *Bring forward the commitment to ban the sale of new diesel and petrol vehicles to 2030.*
- *Bring forward legislation in the form of wider carbon taxation to incentivise behaviour change based on the polluter pays principal.* As a proxy HM Government's re-introduction of the historic luxury tax through the Vehicle Excise Duty in 2017 could form a model for a carbon tax, which should be designed to ensure it, is targeted at those who are both most responsible for the emissions and able to pay.
- *Include the UK's significant shares of international aviation and shipping and exclude the use of international emissions credits, whereby the UK would pay for cuts overseas.*

9.6 Government launching a UK New Green Deal:

Cornwall Council calls for a Green New Deal for the UK, which will enable Cornwall, and the wider UK to achieve our carbon neutral ambitions as soon as possible. This programme to deliver a green industrial revolution should include a:

- *Strategic grid reinforcement programme* to ensure that Cornwall and the wider UK's electricity infrastructure is sufficient to meet the needs of a fully decarbonised electricity system enabling distributed renewables, the electrification of heat and transportation. Cornwall's grid should enable at least 3GW of additional zero-carbon generation capacity to be deployed in-line with the approach outlined in Cornwall Council proposed Climate Change DPD.
- *Make every home warm, dry, heathy and cheap to run by establishing a whole house retrofit programme supported by a retrofit skills development and apprenticeship programme* with education pathways to ensure there is a sufficiently skilled workforce to respond the challenge of retrofitting existing homes across Cornwall and the UK to a near zero carbon standard. Cornwall's housing stock contains many solid wall properties which are difficult to treat and current support mechanism are insufficient address this issue. The Council and Government could work together to dramatically increase the number of properties that can be retrofitted across Cornwall.
- *Reinstating of the Zero Carbon Homes* for new homes through legislation outlining a trajectory towards the introduction net-zero targets for all new homes and near zero-carbon for commercial buildings at the earliest opportunity. Require that new developments should respect the highest standards of sustainability in every aspect (design, drainage, green infrastructure, transport).
- *Zero carbon energy off-gas grid pilots* aimed at providing an alternative approach to the current singular option of all electric heating.
- *Extension of the Renewable Heat Incentive Scheme* beyond its current end date of 2021 to accelerate the uptake of low carbon heating technology.
- *Learn lessons from Green Deal and develop an interest free loans programme for homeowners* to enable them to install renewable energy technologies and energy efficiency measures. This scheme could build on the Scottish Government's Home Energy Efficiency Loan Programme for Scotland (HEEPS).

- *Legislation for a revised financial or progressive tax incentives which support the able to pay market and businesses to incentivise the take up of deep retrofit*, deployment of energy efficiency measure in UK homes and businesses, saving both carbon and energy costs.

9.7 Government supporting a transition towards a regenerative agriculture system

- *Government to reform the Common Agriculture Policy (CAP)* or Brexit equivalent to deliver public goods through higher environmental and climate ambitions in-order to promote low carbon and regenerative agricultural. Any future Agricultural policy should be designed to:
    - Improve farming's productive efficiency including the health and vitality of animals and plants and changes in established practices,
    - Target measures to increase and manage carbon storage on UK farms and
    - Boost production of land-based renewable energy, including bioenergy for processes coupled to carbon capture, storage and utilisation and GHG removal.
- *Increase the budget for research and innovation (R&I) in food, agriculture, rural development and the bio-circular economy*. In-order to support the development and deployment of technologies, directly relevant to farmers and land managers, that can contribute towards reducing agricultural emissions, whilst improving the quality and productivity of food at the same time as improving the environmental and promoting resilience and security.

9.8 Government supporting sustainable transport options for rural areas

- *Department for Transport to issue ring fenced funding for sustainable transport solutions* that will encourage modal shift and the promotion of the electrification of transport
- *New legislative measures to support a modal shift towards public transport and active travel* could include scrappage schemes for internal combustion engine cars in favour of ULEV, car tax to be discounted for ULEV, mandatory installation of bike racks on all buses and trains, employer's subsidy of part of the public transport tickets of their employees, taxation of aviation fuel.

10.0 Big challenges and grand challenges – future direction

10.1 There are many short-term actions where solutions are known and barriers may be overcome. Whilst these actions contribute to genuine progress they do not provide the scale of change needed to address climate change. Dealing with a systems wide leadership issue such as climate change involves overcoming 'big challenges', where solutions to issues may be known but significant barriers exist.

10.2 Addressing climate change requires our whole way of life to change; this is a complex or 'wicked problem'. We are framing these wicked problems as 'grand challenges', where the complexity of the issue is high and as yet the solutions in reality are yet unknown. Such examples include:

- Short-term actions: increasing electric car charging, scaling up of woodland creation, transforming council estate and fleet
- 'Big challenges': agricultural and food systems change, mass home retrofitting, enabling up of renewable energy generation and mass modal shift in transport
- 'Grand challenges': devising a long term 50 year plus vision and spatial strategy for Cornwall that considers the spatial implications of the location of our communities, mass behavioural and lifestyle change, redefinition of economic models and definition of success, redesign of supply chains and developing a circular economy and the role of new technologies

10.3 Our maritime industry provides an example of the scale of change that may be seen in future in Cornwall although not completely clear how the full system adaptation will occur yet. Water environment can be used for more energy production through floating wind installations and for more transportation, particularly for freight. Projects are emerging that consider the:

- Interface between rail, shipping and road transportation of goods in Cornwall
- Alignment of the ferry timetables to wider public transportation networks
- Creation of the infrastructure to support an electrified inshore fleet of boats on the Fal and other Cornish ports.

10.4 The Action Plan focusses on all of the above areas and should be seen as a linked and underpinning document to this report, but many of these will need significant work across multiple systems before solutions and actions can be

formulated. However, all of these areas must be focussed on, no matter how hard they may be, if genuine progress and transformation is to be achieved. They also will require changes at a national level to provide the policy, legal or financial framework within which solutions can be designed and delivered. Therefore, our actions with our regional partners and our asks of Government for the last element of our Action Plan.

11.0 Resourcing the climate change programme

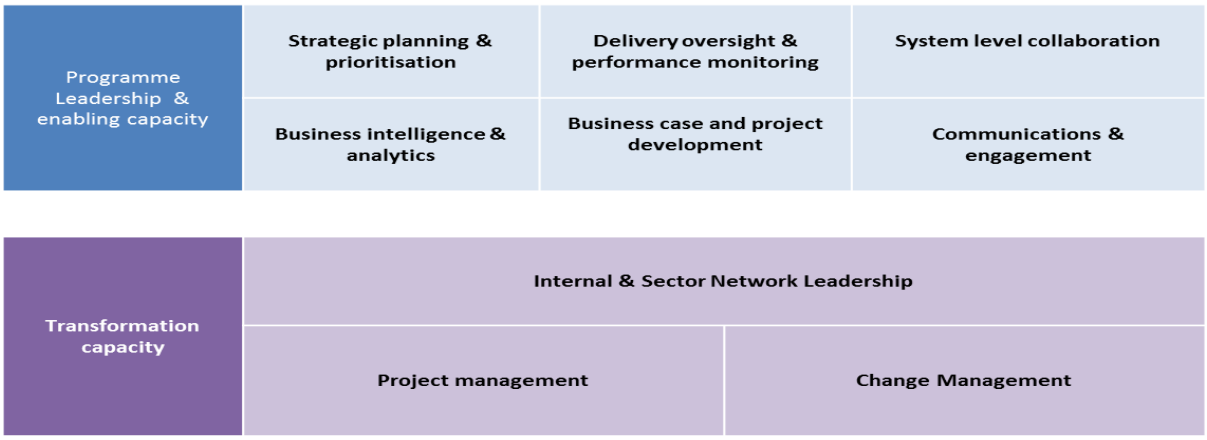
11.1 The resource implications to achieve carbon neutral are significant. For many of the changes identified in this report indicative costs have been provided. However, this will continue to be an evolving process as our planning continues. Whilst this report is a significant milestone, we know that further planning work is required to provide a robust and evidence based plan for tackling the 'big' and 'grand' challenges. We also know that, if we want to be successful, wider engagement with communities, businesses, schools, our public sector partners, the voluntary sector and others will be critical in gaining input to and support for our collective programme to deliver carbon neutrality by 2030.

11.2 During the next phase of the programme, we will continue to work with stakeholders to fully evaluate the options and their associated benefits, impacts, risks and barriers for each of the 'transformational challenges' described in this report. In parallel we will mobilise a delivery programme to accelerate the planning and delivery of the projects for early implementation, a number of which sit within the council's Operational Programme, but also include the acceleration of the due diligence and planning for a forest for Cornwall, and the bidding for match funding to support the first wave of our housing retrofit programme to name just two. This is set out in further detail in the Action Plan.

Programme staffing

11.3 The scale of change will require mainstreaming responsibility for making the necessary transformational changes into the council's day-to-day operations. However, a dedicated core programme team is required to provide leadership, co-ordinate, support our planning, and oversee delivery. The capacity and capability needed to support delivery of the next phase of the programme as

set out in the Action Plan is set out in the following 2 areas illustrated in the diagram below.



11.4 Programme leadership is required to drive the delivery of council controlled actions at pace and work with system actors to co-design the system wide changes necessary for achieving the motion. Supported by a programme office, which will act as the backbone of the programme, they will provide the strategic leadership and direction for achieving the motion and provide the glue to hold all elements of the programme together, in accordance with the councils change delivery framework and governance.

11.5 Continuing the planning work at both organisational and system level and progressing delivery of the projects for early implementation will be undertaken through the workstreams described in the table below. The leadership roles and support needed to deliver on the actions over the next 30 months are provided in the in the tables below.

Environmental infrastructure	**Workstream SRO's** – Operate at Strategic Director level and responsible for the planning, delivery and realisation of benefits of their respective programmes **Workstream Leads -** Capacity to facilitate the development of both internal council changes and to provide sector leadership and facilitation will be essential across many of the workstreams. The Workstream Lead will be fully involved in the full change lifecycle from business case development through to embedding new working practices on the ground. They will have a detailed understanding of the operational environment in which they are enacting working within **Workstream support -** It is expected that many of the work-streams will need dedicated project support to carry out the deliverables within the action plan. They will be the day-to-day agent working
Energy	
Transport	
Built Environment & Housing	
Planning	
Water infrastructure	
Resources & waste	
Commercial & industrial	
Education	
Agriculture	
Marine	
Care Sector	
Behaviour change & Community engagement	
Alternative fuels	

	alongside or on behalf of the workstream leads to facilitate design and support delivery. This support was captured against each action within the action plan

Indicative resourcing estimate and next steps

11.6 Delivery of the next phase of the programme alone has significant resource implications and will be subject to securing the necessary revenue and capital budget via the council's annual budget setting process. It is intended that resourcing this plan will take a phased approach:

Phase One –Sufficient revenue funds are requested to recruit a core team to continue the action plan development and commence delivery of the priority projects for early implementation for the remainder of 2019/20. This will include early investments in a whole house retrofit pilot; phase one of Climate Change Development Plan Document and phase one of the delivery of Forest for Cornwall including an application to the Urban Tree Challenge Fund. This is set out in the table below:

Revenue for core team	Revenue support to workstreams	Capital
£0.46m	£0.5m	£1.7m – (to be allocated from the already approved £16m renewables and climate change investment) • £500k match funding for Urban Tree Fund • £500k – wave 1 Forest for Cornwall • £700k match funding for housing retrofit pilot

Phase Two – Funds for 2020/21 & 2021/22 – Subject to further action plan development, a climate change resourcing proposal will form a constituent part of the decision making for the 2020/21 budget and revision to the Medium Term Financial Plan that accompanies the yearly budget setting process. An indicative assessment of the resources required to deliver on the action plan over the next following 2 financial years is provided below:

Staffing budget – Core programme team (permanent)	20/21	21/22
	£0.69m	£0.6m
Staffing budget – Workstream leadership & support aligned to action plan	20/21	21/22
	£1.9m	£1.9m
Non pay costs (specialist support, marketing materials etc)	£4.9m	
Provisional capital requirement	£78m	

11.7 Cornwall Council will consider the most effective way for financing Cornwall's response to the climate emergency, options under consideration will include loan funded Council investments as well as climate levies.

12.0 Our approach to Governance

12.1 Our arrangements will reflect the journey that we are embarking on. The Neighbourhoods Overview and Scrutiny Committee will undertake a series of inquiry sessions that will provide both oversight of progress and feed in new ideas for governance as the programme develops.

12.2 Equally, the role of the Cornwall and Isles of Scilly Leadership board will be crucial in ensuring that there is Cornwall-wide organisational support, emphasising that this motion is not reliant on any one organisation. It will be crucial that these formal governance structures work symbiotically with the wider engagement approaches encapsulated in the 'Cornwall Conversation' that will pick up many of the grand challenges that communities and individuals can help resolve, creating an overarching governance and engagement approach that covers all systems and creates joint responsibility across all of our systems and communities.

12.3 The figure below highlights, in broad terms, the spheres of governance and engagement that will be required for a programme of this scale and scope.

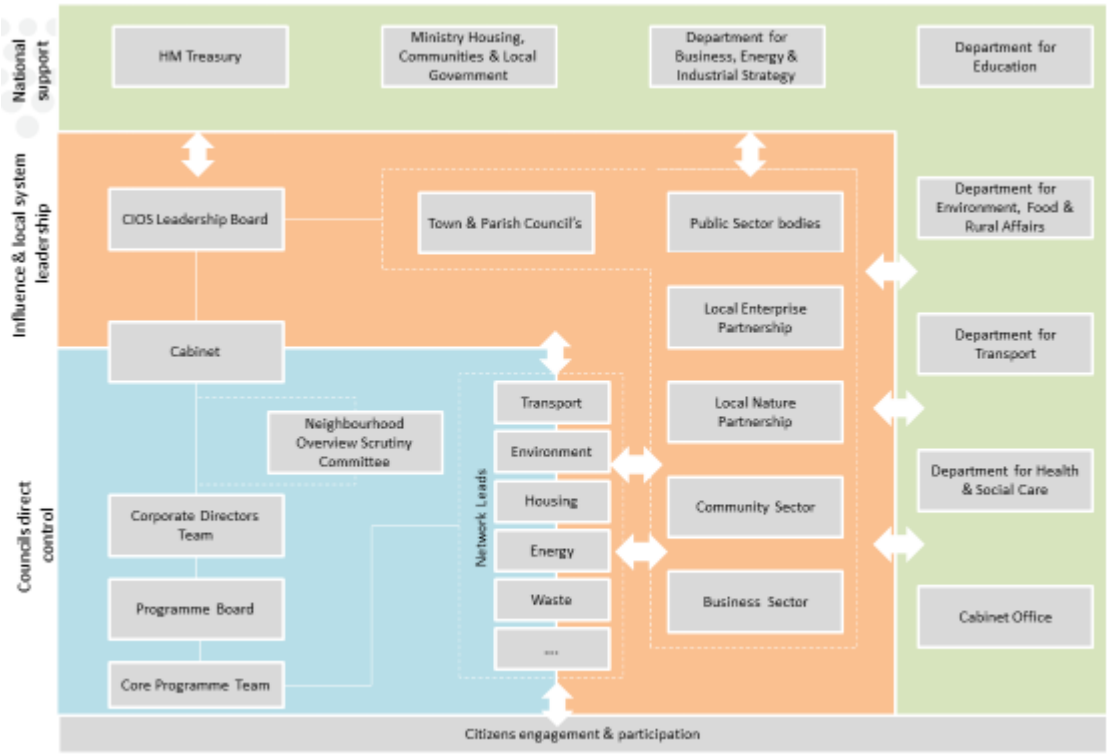


Figure 16: Approach to governance in development

13.0 Communications

13.1 One of the key priorities of the 'define' phase outlined (5.4), was to conduct an extensive community engagement process in order to gauge the spectrum of opinion across all residents and stakeholder groups and help to provide insight to inform the work of the project.

13.2 Engagement activity with residents launched at the Royal Cornwall Show in June and continued with a series of face-to-face sessions in town centres across Cornwall. This activity has provided data on what people believe the Council should be doing to tackle the issues, as well as the steps individuals are taking themselves. The findings of the Climate Change Engagement Feedback report will help shape an integrated communication strategy.

13.3 Cornwall Council's span of direct influence over the reduction in carbon is limited. Given the scale of the climate emergency and the number of audiences we need to reach, we will seek to build a 'team Cornwall' approach to delivering a strong vision through our communications strategy. Our communication objectives will therefore be achieved through using direct

means available to us, as well as via indirect means, through growing our network of influence, and building advocacy through partnerships and collaborations.

In broad terms, our strategy will cover the delivery of communications, based on a strong vision of a climate resilient and carbon neutral future, to:

Improve understanding of the climate emergency, the overall target and the imperative for everyone in Cornwall to play their part by acting now,

- Communicate actions Cornwall Council are taking to directly combat the climate emergency, as well the opportunities available to enable others to do so – the 'team Cornwall' approach
- Build a strong community approach to the communications, developing compelling and useful content that audiences will share through use of social and digital channels
- Promote of a sense of motivation and empowerment, across all audiences in Cornwall, to change behaviours and encourage individuals, organisations to take positive action on the climate emergency.
- Work with relevant stakeholders, community and business groups, charities and individual 'influencers' who can more effectively reach specific audiences than we can alone.

13.5 Our strategy will aim to deliver changes in mind-set and subsequent changes in behaviour, with emphasis on those actions that will make the most positive impact on our environment.

13.6 A broad strategy document has been provided in the Action Plan, but given the scale and complexity of the task ahead, this should be seen as an agile document. The Action Plan and timescales will inform the detail of the communications strategy and delivery plan. It is envisaged there will be a number of communication streams/sub-strategies for each pre-defined audience group. These communications will deliver messages relevant to each audience using the method/channel the audience is most likely to find easily digestible, promoting actions and decisions that are within their power to take.

13.7 A series of engagement activities are currently underway which will provide invaluable insights around community concerns and current motivations (Climate Change Engagement Feedback Report). A (plain English) 'house style'

of terms will also be developed to ensure agreement and standardisation of the language used, both internally and externally, to describe key environmental concepts.

14.0 Next steps

14.1 This report sets out the scale of the challenge, and the nature and scope of our focus for the coming months and years. Much work needs to be done to understand and engage with partners and residents to ensure that the major challenges we face can be overcome. The resourcing requirements to undertake systems leadership and the change programme required will be significant. The scale of change required is unprecedented.

14.2 The staffing, revenue and capital requirements to start this programme are set out in section 11 of this paper. The financial implications of the Action Plan are considerable and an approach to financing the Action Plan needs to be agreed and developed further.

14.3 The next steps for the Action Plan delivery and development are identified as:

- Account for changes proposed through the Cabinet consideration of the Action Plan and publish first iteration of the Action Plan.
- Align the proposals to the 2020/21 Budget process and assign in year resourcing reflecting Cabinet's priorities for action
- Continue the Discovery and Define elements of the Action Plan development
- Mobilise resources on Delivery elements of the Programme approved through July Cabinet
- Continue work with and consult partners, stakeholders, businesses and residents

14.4 In conclusion, this report signifies the start of the journey; a commitment to deliver what is possible through direct action; a commitment to work and engage with others across systems to co-design solutions to the challenge of climate change. It also highlights there are many difficult decisions ahead as we reimagine and redesign how we live in Cornwall together through unprecedented changes.

Glossary of terms

Abatement	Refers to reducing the degree or intensity of greenhouse-gas emissions.
Adaptation	Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities
Afforestation	Planting of new forests on lands that historically have not contained forests.
Anthropogenic greenhouse emissions	Greenhouse-gas emissions resulting from human activities.
Biodiversity	The variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable.
CO2	Carbon dioxide.
Carbon neutrality,	achieving net zero carbon emissions by balancing a measured amount of carbon released with an equivalent amount sequestered or offset
Carbon sequestration	The process of removing carbon from the atmosphere and depositing it in a reservoir
Climate	Climate is typically defined as the average weather (or more rigorously a statistical description of the average in terms of the mean and variability) over a period of time, usually 30 years. These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system.
Climate extreme (extreme weather or climate event)	A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use
Climate Change	A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcing, or to persistent anthropogenic changes in the composition of the

	atmosphere or in land use.
Climate change risk	Additional risk to investments (such as buildings and infrastructure) and actions from potential climate change impacts.
Committee on Climate Change	The Committee on Climate Change is an independent body established under the Climate Change Act (2008) that advises the UK Government on setting and meeting carbon budgets and on preparing for the impacts of climate change.
Climate scenario	A plausible and often simplified representation of the future climate, based on an internally consistent set of climatological relationships that has been constructed for explicit use in investigating the potential consequences of anthropogenic climate change, often serving as input to impact models. Climate projections often serve as the raw material for constructing climate scenarios, but climate scenarios usually require additional information such as about the observed current climate.
Emissions scenario	A plausible representation of the future development of emissions of substances that are potentially radiatively active (e.g., greenhouse gases, aerosols), based on a coherent and internally consistent set of assumptions about driving forces (such as technological change, demographic and Socio economic development) and their key relationships. Concentration scenarios, derived from emissions scenarios, are used as input to a climate model to compute climate projections.
Flood	The overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas that are not normally submerged. Floods include river (fluvial) floods, flash floods, urban floods, pluvial floods, sewer floods, coastal floods, and glacial lake outburst floods.
Greenhouse gasses (GHGs)	The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO2), methane (CH4) and nitrous oxide (N20). Less prevalent --but very powerful -- greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6).
Mitigation	In the context of climate change, a human

	intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other "sinks" to remove greater amounts of carbon dioxide from the atmosphere
Protocol	An international agreement linked to an existing convention, but as a separate and additional agreement, which must be signed and ratified by the Parties to the convention concerned. Protocols typically strengthen a convention by adding new, more detailed commitments.
Resilience	The ability of a social or natural system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity of self-organisation and the capacity to adapt to stress and change.
Sink	Any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere. Forests and other vegetation are considered sinks because they remove carbon dioxide through photosynthesis.
Vulnerability	The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity.