Borough Council of
King's Lynn &
West Norfolk

Climate Change: Emissions Reduction Strategy and Action Plan
2021 - 2024

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1. Foreword

1.1. Lorraine Gore, Chief Executive

To be added at a later date.

Signed: _____ Lorraine Gore, Chief Executive

Date: _____

1.2. Cllr Paul Kunes, Climate Change & Commercial Services Portfolio Holder

To be added at a later date.

Signed: _____ Cllr P Kunes

Date: _____

2. Executive Summary

We at the Borough Council of King's Lynn and West Norfolk are committed to tackling climate change and minimising our contribution to it. Climate change has risen in the public and political agenda significantly over the past 5 years. Following on from the 2015 Paris Agreement targets to limit warming to 2°C and pursue efforts to further limit warming to 1.5°C, the UK government has now committed to a net zero emissions date of 2050. We will also monitor any developments following the 26th UN Conference of the Parties (COP 26) event in Glasgow.

This strategy and action plan is the starting point to reducing our corporate emissions. In line with our climate change policy, we aim to reach net zero by 2050, and have an agreed phased approach to our work. Phase 1 focus on getting our own house in order. This constitutes establishing the reduction of our corporate emissions, in which this strategy and action plan will detail. Phase 2 focuses more so on our role and scope of influence in aiding the reduction of district wide emissions. This strategy touches upon our phase 2 work as we are looking to tackle these emissions as and when opportunities arise. However, phase 1 is largely the focus of this first strategy and action plan. This strategy and action plan will be a live document and will be updated to reflect changes to council priorities and national legislation.

We have undertaken a number of initiatives in recent years that show our commitment to tackling climate change. Our Climate Change Policy, adopted in October 2020, outlines our intention for addressing our corporate carbon footprint, whilst also noting our role as a community leader in helping reduce the district's carbon footprint. Solar panels feature on a number of council buildings, generating renewable electricity for our consumption, whilst complementing our initial 2019 estate Re:fit to reduce our energy consumption. Additionally, internal work has occurred as a starting point to push forward our climate change agenda. Our corporate business plan has been updated to include climate change as a key priority, with cabinet report templates also now requiring environmental considerations. We have also appointed a climate change officer on a two-year fixed term post to conduct annual audits and aid the development of climate change work.

Within this strategy and action plan, our phase 1 emissions reduction areas have been split into our audit scopes. We detail why and how each scope contributes to our emissions and what kind of measures will have an effect. Our action plan builds upon this and details specific actions we will take to ensure emissions form each scope are reduced. Similarly, for phase 2, we highlight emissions sources from all 4 emissions sectors in relation to our districts characteristics. Our Action Plan details some initial, specific actions we could take for each sector, in line with our scope of influence over the district emissions. Additionally, we highlight where government policies could influence district emissions. We recognise that we cannot tackle climate change in isolation. Therefore, we support the Norfolk Climate Change Partnership (NCCP) and see this partnership as an important mechanism to tackling our own district's emissions and well as Norfolk's in total.

Our ability to implement this strategy and action plan will depend on adequate financial stimulus and staffing capacity. Further to this, the COVID-19 pandemic response and recovery will have impacts on our ability to deliver this strategy and action plan. Our performance against this strategy and action will be measured and monitored by a series of annual documents.

3. Introduction

3.1. What is climate change?

Climate change refers to a "change in the state of the climate that can be … changes in the mean and/or the variability of its properties … that persists for an extended period [of time], typically decades or longer" (IPCC, 2012, p. 544). There have been multiple episodes of climate change throughout the earth's history with the most recent one occurring since the industrial revolution. The climate is altered by changes to the inputs and outputs of solar radiation from the sun to the earth and from the earth into space.

The sun's radiation provides the earth with energy, which is also re-emitted back into space. There is a constant flow of energy being absorbed and re-emitted. When more energy leaves the earth's climate system than comes in, then temperatures cool. However, when there is more energy coming in than escaping, temperatures increase. The latter is the trend we have observed since the industrial revolution.

3.2. What causes climate change?

The Intergovernmental Panel on Climate Change (IPCC) concur that it is extremely likely that more than half of the global average surface temperature warming between 1951 and 2010 is as a result of anthropogenic (human induced) increases in greenhouse gasses (GHGs) in the earth's atmosphere (IPCC, 2013). It is extremely likely that human influence is the "dominant cause of the observed warming since the mid 20th century" (IPCC, 2014, p.623).

GHGs are gaseous constituents of the atmosphere, that absorb and emit radiation at specific wavelengths within the spectrum of thermal infrared radiation, emitted by the Earth's surface, atmosphere, and clouds. Water vapour (H_2O), carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4) and ozone (O_3) are the primary GHGs in the Earth's atmosphere.

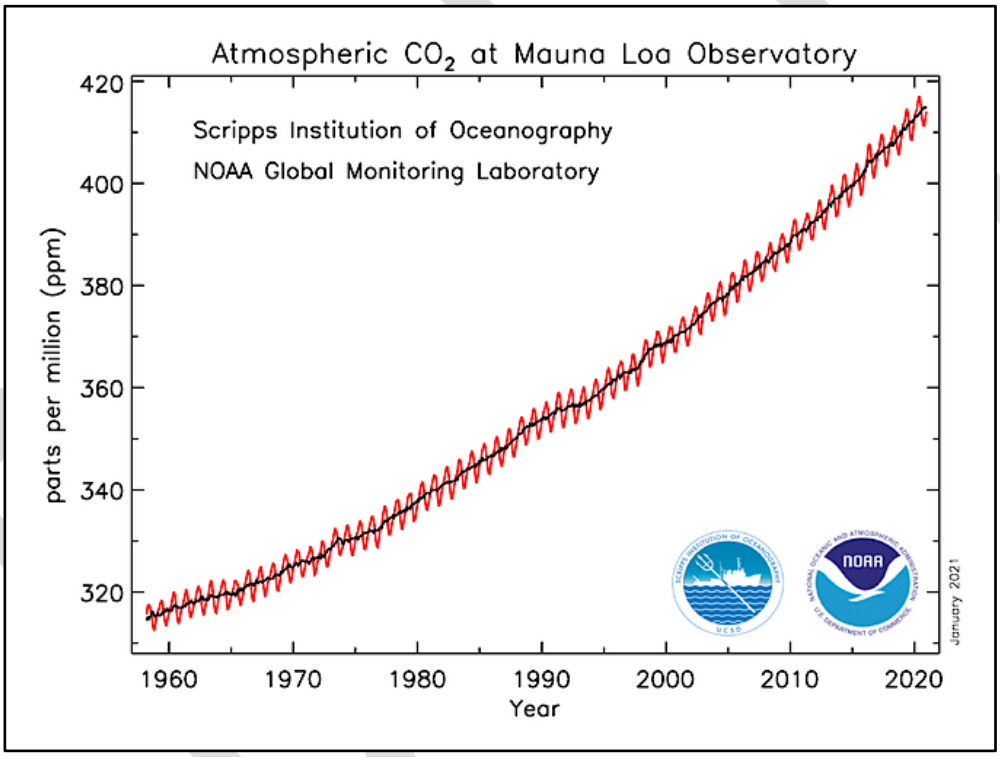
Since the industrial revolution however, humans have increased the amount of GHGs in the atmosphere through the burning of fossil fuels (coal, oil and natural gas). Carbon dioxide is the principal GHG that affects the Earth's radiative balance. Since the beginning of the industrial revolution (1750) the atmospheric concentration of CO_2 has increased by 48.2% from 280 ppm (parts per million) to 415 ppm (see figure 1) (NOAA, 2021). The last time the concentration was this high was potentially over 20 million years ago (IPCC, 2001).

CO_2 and other GHGs trap infrared radiation (energy) in the Earth's atmosphere, stopping it from being re-emitted into space and instead trapping the heat. Therefore, more energy is coming into the Earth's climate system than is escaping, resulting in changes to the Earth's temperatures (the greenhouse effect). Since the industrial revolution, we have experienced the enhanced greenhouse gas effect, with continued

increases in GHGs being emitted into the atmosphere. The change in average temperature has been well documented by the IPCC, with estimates placing current warming at 0.2°C per decade, based on past and current GHG emissions. The IPCC conclude with high confidence that anthropogenic (human-induced) warming reached approximately 1°C above pre-industrial levels in 2017 (between 0.8°C - 1.2°C) (Allen, et.al, 2018).

The scientific consensus on climate change is therefore, that human activity is the primary driver for the climate change seen since the industrial revolution (anthropogenic climate change). The IPCC conclude that "It is extremely likely that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing's together" (IPCC, 2013b, p.17).

Figure 1: Observed atmospheric CO_2 changes



Data Source: NOAA Earth System Research Laboratory, 2021 (NOAA, 2021).

4. Current UK Climate Action

4.1. Climate Change Act, 2008

The Climate Change Act 2008 is the basis for the UK's approach to tackling and responding to climate change. It requires that emissions of carbon dioxide and other greenhouse gases are reduced and that climate change risks are prepared for. The

Act also establishes the framework to deliver on these requirements. This Act supports the UK's commitment to urgent international action to tackle climate change.
Initially through the Climate Change Act, the UK government set a target to reduce UK greenhouse gas emissions to 80% lower than 1990 levels by 2050. The Act also established the Committee on Climate Change (CCC) to ensure that emissions targets are evidence-based and independently assessed. In addition, the Act requires the Government to assess the risks and opportunities from climate change for the UK, and to prepare for them. The CCC's Adaptation Sub-Committee advises on these climate change risks and assesses progress towards tackling them.

Updated in 2019, the Climate Change Act commits the UK government by law ensuring that the net UK carbon account for 2050 is at least 100% lower than the 1990 baseline (net zero) (UK Government, 2019). The Climate Change Act requires the government to set legally-binding 'carbon budgets' to act as steppingstones towards the 2050 target. A carbon budget is a cap on the amount of greenhouse gases emitted in the UK over a five-year period. Budgets must be set at least 12 years in advance to allow policymakers, businesses and individuals enough time to prepare (UK Government, 2019).

The CCC advises on the appropriate level of each carbon budget. The budgets are designed to reflect a cost-effective way of achieving the UK's long-term climate change objectives. The first five carbon budgets have been put into legislation and run up to 2032. Once a carbon budget has been set, the Climate Change Act places an obligation on the Government to prepare policies to ensure the budget is met. A sixth carbon budget was proposed by the CCC in December 2020, which recommends a 78% reduction in UK emissions by 2035, accompanied by a 68% reduction by 2030.

4.2. Paris Agreement on Climate Change, 2015

The Paris Climate Agreement aimed to reduce the emission of gases that contribute to global warming. The Paris Agreement set out to improve upon and replace the Kyoto Protocol, an earlier international treaty designed to curb the release of GHGs. The Paris Agreement entered into force on November 4, 2016 and as of November 2020 has been signed by 194 states and the European Union (EU) and ratified by 187 states and the EU.

The objective was a binding and universal agreement designed to limit greenhouse gas emissions to levels that would prevent global temperatures from increasing more than 2°C above the temperature benchmark set before the beginning of the Industrial Revolution (pre-industrial levels) and "pursuing efforts to limit" them even more, to 1.5°C (United Nations, 2015, p.3). Anthropogenic greenhouse gas emissions would need to be reduced to the same levels that trees, soil and oceans can absorb naturally.

The agreement is to review each country's contribution to cutting emissions every five years, so they scale up to the challenge, with richer countries also being required to help poorer nations by providing "climate finance" to adapt to climate change and switch to renewable energy.

4.3. 10 Point Plan for a Green Industrial Revolution, 2020

In November 2020, the UK Government published their 'Ten Point Plan for a Green Industrial Revolution'. This plan set out the Government's intention to decarbonise the UK through investment in clean technologies. The goal is to reduce emissions by 180 million tonnes of CO_2e from 2023 to 2032, with £12billion of investment announced to fund this plan. Funding decarbonisation is also reliant on expected private sector finding, totalling three times the Government's proposed investment.

Policy areas highlighted for investment and decarbonisation are as follows:

1. Advancing Offshore Wind
2. Driving Growth of Low Carbon Hydrogen
3. Delivering New and Advanced Nuclear Power
4. Accelerating the Shift to Zero Emissions Vehicles
5. Green Public Transport, Cycling and Walking
6. Jet Zero and Green Ships
7. Greener Buildings
8. Investing in Carbon Capture, Usage and Storage
9. Protecting the Natural Environment
10. Green Finance and Innovation

We can expect further white papers, strategies and policies from government throughout 2021 and in the lead up to the United Nations Climate Change Conference of the Parties 26 (COP26) in November 2021.

5. Our Situation

5.1. Climate change policy

In October 2020, we adopted a Climate Change Policy. This policy primarily sets our intention for addressing our carbon footprint, whilst also noting our need to help reduce the district's carbon footprint and act as a community leader to encourage others to tackle climate change.

The policy states that the council will "proactively identify, understand, manage and review its level of greenhouse gas emissions to play its part in contributing towards achieving the Climate Change Act 2008 and the Paris Climate Agreement". We are following an agreed phased approach to our climate change work, with phase 1 focusing first and foremost on reducing our corporate emissions and phase 2 looking at district emissions.

As a council we will comply with national climate change legislation and statutory guidance and will stay in line with changing national policy. Our goal is therefore, achieving net zero emissions by 2050, in line with the UK Climate Change Act 2008.

5.2. Borough Council of King's Lynn and West Norfolk emissions

We conduct an annual carbon audit as a measure to track and monitor our corporate emissions over time. This carbon audit procedure will help us ensure that we are continuing to reduce our corporate emissions to meet our net zero 2050 target.

A detailed breakdown of our emissions can be found on our website.

Our emissions are split into 3 scopes:

- Scope 1: Oil consumption, gas consumption and vehicle fleet fuel consumption.
- Scope 2: Electricity consumption.
- Scope 3: Transmission and distribution losses, water supply, water treatment, business travel and contractor travel (waste refuse collection).

5.3. King's Lynn and West Norfolk District emissions

The Department of Business, Energy and Industrial Strategy (BEIS) publish local authority area carbon dioxide emissions statistics every year. The latest figures were published in 2020, which show that our district; King's Lynn & West Norfolk is one of the highest emitting districts in the UK, having emitted 1,359.7 kilo tonnes CO_2 (kilo tonnes of carbon dioxide) in 2018. These reports detail emissions two years prior to the report date, therefore, the 2020 release provides data for 2018.

A detailed breakdown of the district's emissions can be found on our website.

District emissions are split into 4 sectors:

- Industrial and Commercial: Industrial sites across the borough, agriculture and landfill.
- Domestic: Gas use, electricity use and other fuel use in domestic.
- Road Transport: Emissions from road transport on A-roads, B-roads and diesel railways.
- Land Use, Land Use Change & Forestry (LULUCF): We are a net contributor of CO_2 and methane due to the decomposition of peat in our district.

5.4. What have we already done?

Our work follows an agreed phased approach: phase 1 looks solely at the council and reducing our carbon footprint. Phase 2 focuses on what we can do to influence emissions reductions on a district level. We will and have looked to influence the reduction of district emissions simultaneous to our phase 1 work, as and when opportunities arise.

Below is an overview of measures introduced by the council to tackle emissions reductions.

5.4.1. Emissions reductions

1. Solar panels have been installed onto the following council owned properties:
    a. Lynnsport – 2012 & 2020.
    b. King's Court – 2012.
    c. Alive Downham Market Leisure Centre – 2020.
    d. Alive St James – 2020.
2. We conducted a Re:fit of our estate through Ameresco in 2019. This is expected to save approximately 400 tonnes CO_2 a year.
3. A small-scale tree planting programme took place in King's Reach on the 22nd February 2020, which saw 500 trees planted. Tree planting will ultimately help sequester residual emissions.
4. Our lease car strategy has been updated, whereby from the 18th June 2019 lease cars can only be hybrid petrol/electric or fully electric.
5. Our Mayor's car is now a BMW hybrid.
6. There has been a push to reduce the ICT carbon footprint, with "Free Cooling" being introduced, which allows DX AC Units to be turned off during the cooler periods throughout the year. ICT have also virtualised most of their server estate, which reduces the physical hardware in their datacentre.
7. We will be using a green tariff for our electricity from the 2020/2021 financial year onwards.

5.4.2. Internal climate change action

1. A Climate Change Officer Working Group was established in September 2019.
2. A UEA graduate was initially appointed on a 12-month internship to aid climate change work. In September 2020, this was extended with a two-year fixed term post, which as of May 2021 is now a permanent post.
3. We developed and implemented a new carbon audit procedure, starting with our 2018/2019 audit.
4. A Norfolk county group called the *'Norfolk Climate Change Partnership'* (NCCP) was established in January 2020 to work with other Norfolk councils on climate change issues.
5. Two UEA Environmental Science students on their 3rd year Environmental Consultancy module, produced consultancy papers for us. These were on the tree planting project feasibility and net zero carbon possibilities.
6. Our Corporate Business Plan now includes climate change as one of its corporate priorities: "protecting and enhancing the environment including tackling climate change".
7. Environmental Issues have been added to our cabinet report template.
8. Climate Change/Environmental Issues will be included in project initiation documents.
9. Our Climate Change Policy was adopted by full council on 15/10/2020.

10. We provide routine staff and member updates on climate change work.
11. In response to the COVID-19 pandemic, agile working and reduce business miles will help reduce our emissions.
12. King's Court procurement of sustainable paper for floor printers.

5.4.3. Public engagement

1. In collaboration with Churches Together we provided land and helped facilitate the planting of 500 trees in King's Reach, King's Lynn with local volunteers.
2. Our climate change team has provided regular updates on their work to the Council's Environment and Community panel.
3. We have provided support for upcoming art campaigns and events, related to climate change.
4. We have promoted ways to reduce our residents carbon footprints through our website.
5. We have amended and expanded our website content to allow for transparency and to publish recent updates and documents.
6. We encouraged and promoted the Government Green Homes Grant voucher scheme.
7. We have participated in King's Lynn Climate Concern workshops.

6. Strategy Phase 1: Reducing BCKLWN Emissions

The objective of this document is to provide a framework for our phase 1 work, which focuses on the reduction of our council's corporate emissions.

Phase 1 work focuses on measures to reduce emissions from our scope 1, 2 and 3 sources. These direct and indirect emissions reductions are achieved through direct changes to the way in which we operate as a council, going about our statutory and non-statutory duties.

6.1. Scope 1: Gas consumption

Whilst gas consumption for heating purposes is less emissions intensive than using oil, it is still a fossil fuel, and thus contributes to climate change. Gas boilers have a carbon footprint range of approximately 210 – 380 gCO_2e/kWh compared to 310 – 550 gCO_2e/kWh from oil boilers (Squires and Goater, 2016). Despite energy efficiency improvements in recent years, our gas consumption still contributes a significant amount of our overall corporate emissions.

Between 2019 and 2020 we completed an initial Re:fit phase 1 of 15 council buildings for a capital investment of £1,337,104. This Re:fit improved the energy efficiency of the buildings, with the aim of helping reduce consumption, cost and carbon emissions. However, in addition to energy efficiency improvements we must look at changing our

heating sources from gas to more renewable alternatives. In late 2020, work started on a Re:fit phase 2, in which we obtained £3.8million in grant funding from the BEIS Public Sector Decarbonisation Scheme. This allows the council to further reduce emissions from its buildings, focusing on decarbonising heat through the adoption of renewable energy technology, such as air and ground source heat pumps.

6.2. Scope 1: Council vehicle fleet

We operate over 100 vehicles and equipment in our fleet, most of which run off petrol and diesel, emitting on average 2.2 kgCO_2e/litre and 2.5 kgCO_2e/litre respectively (DBEIS, 2020). Additionally, red diesel (gas oil) consumption also contributes 2.8 kgCO_2e/litre (DBEIS, 2020). Emissions from our vehicle fleet are recorded annually in our carbon audit, which gives rise to hundreds of tonnes of CO_2e/year.

In 2020, the UK government announced their pledge to ban the sale on new petrol and diesel cars and vans from 2030. Therefore, we can see that the future of our vehicle fleet will likely be electric. The use of low emission hybrid vehicles will also feature until 2035. This a future that we will need to prepare for.

Currently, fuel efficiency is a consideration for maintaining our vehicle fleet, therefore, they are on a rolling 10-year contract allowing for replacement as and when needed. Recently, there have already been some initial steps towards electrification, notably with our mayor's car switching to a hybrid.

Cost will be a driver in the electrification of our vehicle fleet, with current electric vehicles priced much higher than their fossil fuel alternatives. Due to the rural nature of our district, an electric fleet will have to be able to efficiently cope with being driven hundreds of miles per day with large payloads. Therefore, alternative fuel powered vehicles might become more viable for us in the future. The first step for us is to identify what options are out there to allow for our transition over to an electric vehicle fleet.

6.3. Scope 2: Electricity consumption

We consume millions of kilowatt hours (kWh) of electricity per year in order to power our 142 owned sites. This is at an annual cost of hundreds of thousands of pounds. The electricity we consume is sourced from the national grid, therefore, it is generated from a variety of sources, some of which being fossil fuels. 1kWh of UK electricity consumed emits 0.23 kgCO_2e/kWh (DBEIS, 2020). Emissions from the consumption of electricity decrease as the national grid increases its share of renewable generation and decreases fossil fuel electricity generation.

Currently we have agreed to switch to a renewable electricity tariff for our larger estate premises from the 2020/2021 financial year onwards. This will significantly reduce our overall emissions from scope 2 emissions. From the 2021/2022 financial year we anticipate the entire council estate to be on this tariff. This will reduce scope 2 emissions to 0 tCO_2e. However, ultimately this is only a short-term solution. We will need to improve energy efficiency across our estate to reduce consumption in addition to generating our own electricity, to ensure that our electricity consumption is net zero.

6.4. Scope 3: Transmission and distribution losses

Transmission and distribution (T&D) losses occur for every kWh purchased due to the transmission between supply sources and distribution points and then distribution to consumers. Our large consumption of electricity therefore, results in sizable T&D losses. For every kWh consumed from the national grid 0.02 kgCO2e is emitted as a result of these T&D losses (DBEIS, 2020).

These losses can be tackled through the improvement in energy efficiency to reduce consumption and further electricity generation on our estate. We currently have several sites with solar panels, that help reduce T&D losses due to their proximity to the consumption source.

6.5. Scope 3: Water supply and water treatment

Our water consumption does contribute to our carbon footprint, with our estates consuming tens of thousands of cubic metres (m^3) every year. For every m^3 consumed we are therefore, emitting 0.34 kgCO2e (DBEIS, 2020). As a council we also run leisure centers through 'Alive West Norfolk' which includes three swimming pools. The pools are our largest consumers of water and therefore the largest emitters from this source.

In addition to water supply we also have water treatment, which accounts for the disposal of water. This is measured with a 90% return to sewerage rate. Despite returning 10% less than we consume, water treatment is more emissions intensive than consumption, emitting 0.71 kgCO2e/m^3 (DBEIS, 2020).

Water supply and treatment emissions will be considered through the council's energy efficiency improvement measures.

6.6. Scope 3: Business travel

Staff and member business travel is largely restricted to local areas, which mainly involves driving to other council areas within the district or Norfolk. These indirect travel emissions are accounted for in scope 3. The average diesel and petrol cars emit 0.27 and 0.28kgCO_2e/mile respectively. However, business travel does also include trips further afield, which are often for staff training purposes.

Some steps have already been taken to reduce business travel emissions, for instance, our lease car policy has recently been changed to reflect our commitment to reducing emissions. As of June 2019, all new lease cars can only be petrol/hybrid or fully electric. In the future we expect to see a reduction in our staff business travel emissions as the uptake of hybrid and electric cars increase. Additionally, in response to the 2020 COVID-19 pandemic, virtual meeting software has been used to conduct meetings and training for staff and members. This helps to reduce emissions from the miles travelled. Further to this, a starting point for future work will be the investigation of a staff and business travel plan, taking into account the lasting effects of the pandemic on working arrangements.

6.7. Scope 3: Contractor travel (refuse collection)

Refuse collection has historically been one of the largest contributors to our corporate emissions, with our refuse collection vehicles consuming hundreds of thousands of litres of diesel every year. Refuse collection is one of our statutory duties, therefore, emissions from this sector are inescapable until low emissions vehicle options are viable.

From April 1st, 2021 we start a new refuse collection contract with supplier Serco. Jointly tendered along with Breckland Council and North Norfolk District Council, this contract will allow for greater fuel efficiency in collecting across the three districts with optimised collection routes. The goal is to reduce the amount of fuel used and therefore, emissions released into the atmosphere. This contract will include a fleet of brand-new vehicles, which will have more efficient engines compared to the previous fleet. Additionally, some smaller fleet vehicles will be either hybrid or electric. Consequently, our joint contract is expected to see a 38% emissions reduction across the joint operation.

Further technology and options will be reviewed and considered leading up to the end of this contract in 2028.

6.8. Residual Emissions: Tree planting

We are expecting to have a level of residual emissions by 2050, from sources of which emissions reductions are harder to achieve. In its definition, net zero refers to balancing any remaining GHGs with an equivalent amount of carbon removal. Tree planting is one option for this, with trees naturally absorbing CO_2 from the atmosphere. Any planting on our land can, therefore, be used to balance our residual emissions.

We are committed to increasing tree planting in the district. Using our own land, we have already engaged in ways to enable tree planting in the district. In January 2020 we provided land and assistance to plant 500 trees in King's Reach, Fairstead. Additionally, we are developing a pilot tree planting project, seeking to option grant funding for the planting of trees in the 2021/2022 planting season.

We may also need to consider alternative options such as carbon credits or similar schemes to deal with residual emissions.

6.9. Other: Procurement

This council is committed to sustainable practices in all areas of our work. This includes procurement the council undertakes. Climate change will be added to our procurement strategy during its next scheduled update, to ensure that our further activities allow us to adhere to our climate change policy and corporate objectives.

6.10. Other: Corporate changes

Already we have made several internal corporate changes to act on climate change. Our corporate business plan has been updated to account for climate change, as stated in its third priority: “protecting and enhancing the environment, including tackling climate change”. Our council climate change policy was adopted by full council on the 15/10/2020, with permanent climate change officer post also filled to oversee emissions reporting and input into the development of the council’s emissions reduction journey. Additionally, our cabinet report template and project initiation document reflect environmental considerations. Smaller scale changes include the use of carbon neutral paper at King’s Court print room and floor copiers.

7. Strategy Phase 2: Reducing District Emissions

Phase 2 focuses work on the extent to which our scope of influence extends and therefore, what power we have as a local authority to influence district emissions reductions. However, our main priority first and foremost is to get our own house in order before we can focus completely on the district.

Whilst we are initially focusing on phase 1 work, we will and have looked to influence the reduction of district emissions simultaneous to our phase 1 work, as and when opportunities arise.

We recognise that we cannot tackle climate change in isolation. Therefore, we support the Norfolk Climate Change Partnership (NCCP) and see this partnership as an important mechanism to tackling our own district’s emissions and well as Norfolk’s in total

7.1. Industrial and commercial

The industrial and commercial (I&C) sector is the largest emitting sector in King’s Lynn and West Norfolk district. Our district is home to several large point source emitters and landfill sites, which help contribute towards the high I&C sector emissions. Emissions are measured on an end-user basis, which include electricity consumption, gas consumption, large industrial installations, other fuels (e.g., gas oil) and agriculture.

7.2. Domestic

Our district is home to the largest number of residential properties in Norfolk, with over 70,000 properties within our district boundary. Due to the rural nature of the district many domestic properties do not have access to the main gas line. Therefore, these properties use electric, oil or solid fuel for spatial heating, with little opportunity to engage with other forms of heating. Thus, emissions are relatively high as carbon intensive fuel is often the only option for heating lower band EPC properties. Many of these domestic properties are also relatively old and are thus, energy inefficient, with

low thermal performance. Consequently, heat is not properly contained, requiring more fuel to be burnt to keep the property warm, thus emitting more.

7.3. Transport

King's Lynn and West Norfolk is a large rural district and has a mixture of A-roads and smaller (B/C) roads. A-roads are the main roads that come in and out of larger areas like King's Lynn, thus, they attract commuter travel, visitor travel and goods transportation. A-roads act as a transport node, forming the main routes for commuters, heavy goods vehicles, and tourism in and out of King's Lynn and West Norfolk. These A-roads include the A10, A134, A17, A47, A149, A148. There is a large network of minor roads throughout the district (B and C roads). Minor road emissions contribution is likely due the rural feature of the district, and the consequent broad dispersal of services and population.

7.4. Land use, land use change and forestry (LULUCF)

Whilst many districts have a CO_2 sink with forestry, King's Lynn and West Norfolk (like other fen districts) is a net emitter, mainly due to CO_2 (and methane) emissions from the fen peat deposits. Whilst the LULUCF sector is the lowest sector emitter in the district, it is proportionally much higher than Norfolk and national averages for LULUCF.

8. Emissions Reduction Action Plan

8.1. Phase 1: Reducing BCKLWN emissions

Scope	Emissions Source	Actions	Lead Departments	Timeline	Capital Costs
Scope 1	Gas Consumption	1. Re:fit Part 2 Public Sector Decarbonisation Grant to install ASHPs and GSHPs in council sites.	Property Services / Alive West Norfolk	2021	£3.8m[1]
		2. Re:fit Part 2 Public Sector Decarbonisation Grant to improve the energy efficiency of council estates with high energy consumption.	Property Services / Alive West Norfolk	2021	£3.8m[2]
		3. Establish a building retrofit programme, through a high level review of our buildings, to create grant ready applications/projects.	Property Services / Alive West Norfolk	2021 - 2022	tbc
		4. Implement a building retrofit programme.	Property Services / Alive West Norfolk	2022 - 2050	tbc[3]
	Vehicle Fleet	5. Adopt an EV/Hybrid first policy (unless the business case suggests otherwise).	Open Space / Transport Manager	2021 - 2022	n/a
		6. Conduct a green fleet review through the Energy Saving Trust.	Open Space / Transport Manager	2021 - 2022	n/a
		7. Develop a fleet renewal strategy – depending on the EST review and our commercial situation.	Open Space / Transport Manager	2021 onwards[4]	n/a

[1] £3.8m in total for gas and electricity improvements, already acquired from the BEIS public sector decarbonisation grant.
[2] The same BEIS public sector decarbonisation grant funding highlighted in action 1.
[3] Will be dependent on grants or available capital funding.
[4] Dependent on the complexity and timeliness of action 5.

		8. Investigate the replacement of fossil fuel powered ground tools for zero carbon alternatives.	Open Space / Transport Manager	2021 onwards	tbc
		9. Implement one pilot council electric vehicle, subject to action 5.	Open Space / Transport Manager	2021 - 2023	£26k[5]
		10. Current proposed council EV charger installation.	Open Space / Transport Manager	2021 - 2032	£19k[6]
		11. Install EV chargers, in line with demand and fleet electrification, and in conjunction with available grants.	Open Space / Transport Manager	2021 - 2032	tbc
Scope 2	Electricity Consumption	12. Complete switch to a 100% renewable energy tariff.	Property Services / Alive West Norfolk	2021 - 2022	£2.5k
		13. Re:fit Part 2 to increase Solar PV provision to offset increased ASHP & GSHP consumption.	Property Services / Alive West Norfolk	2021 - 2022	£3.8m[7]
		14. Establish a building retrofit programme, through a high level review of our buildings, to create grant ready applications/projects.	Property Services / Alive West Norfolk	2021 - 2022	tbc
		15. Implement a building retrofit programme.	Property Services / Alive West Norfolk	2022 - 2050	tbc
		16. IT desktop technology 5-year replacement cycle.	ICT	2025 - 2026 & onwards.	tbc
		17. Investigate data centre cooling methods for the summer months.	ICT	2022 - 2023	tbc
Scope 3	Transmission &	18. Re:fit Part 2 to increase Solar PV provision to offset increased ASHP & GSHP consumption.	Property Services / Alive West Norfolk	2021 - 2022	£3.8m[8]

[5] Based on average UK non-luxury EV car cost. Further funding for the rest of the fleet will be required.
[6] Initial quote for two pod-point twin charging units.
[7] The same BEIS public sector decarbonisation grant funding highlighted in action 1.
[8] The same BEIS public sector decarbonisation grant funding highlighted in action 1.

	Distribution Losses	19. Investigate commercial solar options through Re:fit Part 2.	Property Services / Alive West Norfolk	2022 – 2024	n/a
		20. Consider further Solar PV options as part of every subsequent Re:fit.[9]	Property Services / Alive West Norfolk	2022 - 2050	£300 - £500 per panel.[10]
	Water Supply & Treatment	21. Investigate water consumption reduction options as part of each Re:fit.[11]	Property Services / Alive West Norfolk	2022 - 2050	tbc
	Business Travel	22. Conduct a grey fleet review through the Energy Saving Trust.	Policy & Personnel	2022 - 2023	n/a
		23. Develop and produce a council business travel plan, to support working arrangements.	Policy & Personnel	2023 - 2025	n/a
	Contractor Travel (Refuse Collection)	24. Start joint council contract with Breckland and South Norfolk. Potential refuse collection CO_2e savings of 38%.	Refuse & Recycling	2021 - 2028	Already funded
		25. Conduct an HGV fleet review through the Energy Saving Trust.	Refuse & Recycling	2025	n/a
		26. Continue to monitor future technology available for the next refuse contract.	Refuse & Recycling	2025 - 2030	n/a
Residual Emissions	Green Habitat / Tree Planting	27. Complete a pilot tree planting programme on Lynnsport land, applying for the appropriate grant.	Open Space / Planning	2020 - 2022	£72k
		28. Use our pilot tree planting programme as a worked example for local landowners.	Open Space / Planning	2022 onwards	n/a

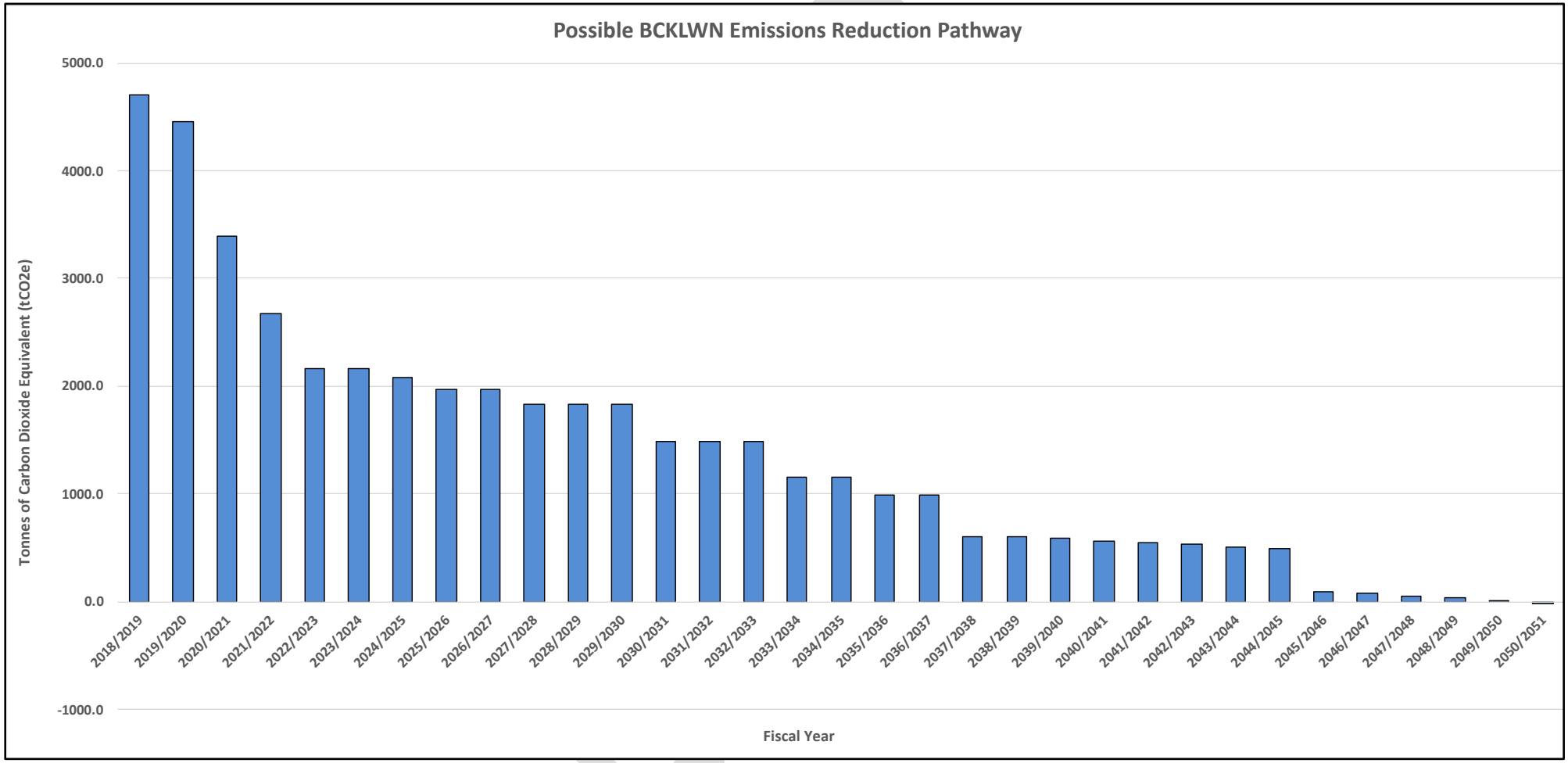
[9] Link to action number 14.
[10] Average cost per panel. There are multiple funding models available for consideration, including leasing, power purchase agreements or capital purchase.
[11] Link to actions 3 and 14.

		29. Consider internal best value options for further tree planting and maintenance on council land. [12]	Open Space / Planning	2021 - 2022	tbc
		30. Investigate woodland burial options.	Crematorium / Commercial Services	2021 - 2023	tbc
		31. Investigate memorial park/garden options.	Crematorium / Commercial Services	2021 - 2023	tbc
		32. Investigate future tree planting options associated with development.	Open Space / Planning	2022 - 2023	n/a
		33. Conduct a canopy cover and tree stock assessment for council owned land.	Open Space	2022 - 2023	£10k - £70k[13]
		34. Develop and implement a longer-term green habitat and tree planting strategy.	Open Space	2022 onwards	n/a
		35. Investigate options for micro-forests.	Open Space / Climate Change	2022 onwards	n/a
		36. Identify more accurate figures for carbon sequestration accounting.	Climate Change	2021 - 2022	n/a
	Carbon Credits	37. Investigate commercial solar options.	Corporate	2022- 2023	tbc
		38. Investigate further carbon credit investment options.	Climate Change	2030 - 2040	n/a
Other	Procurement	39. Update the procurement strategy to include emissions reductions/climate change.	Procurement	2023	n/a
	Corporate	40. Review council climate change policy.	Climate Change	2023	n/a

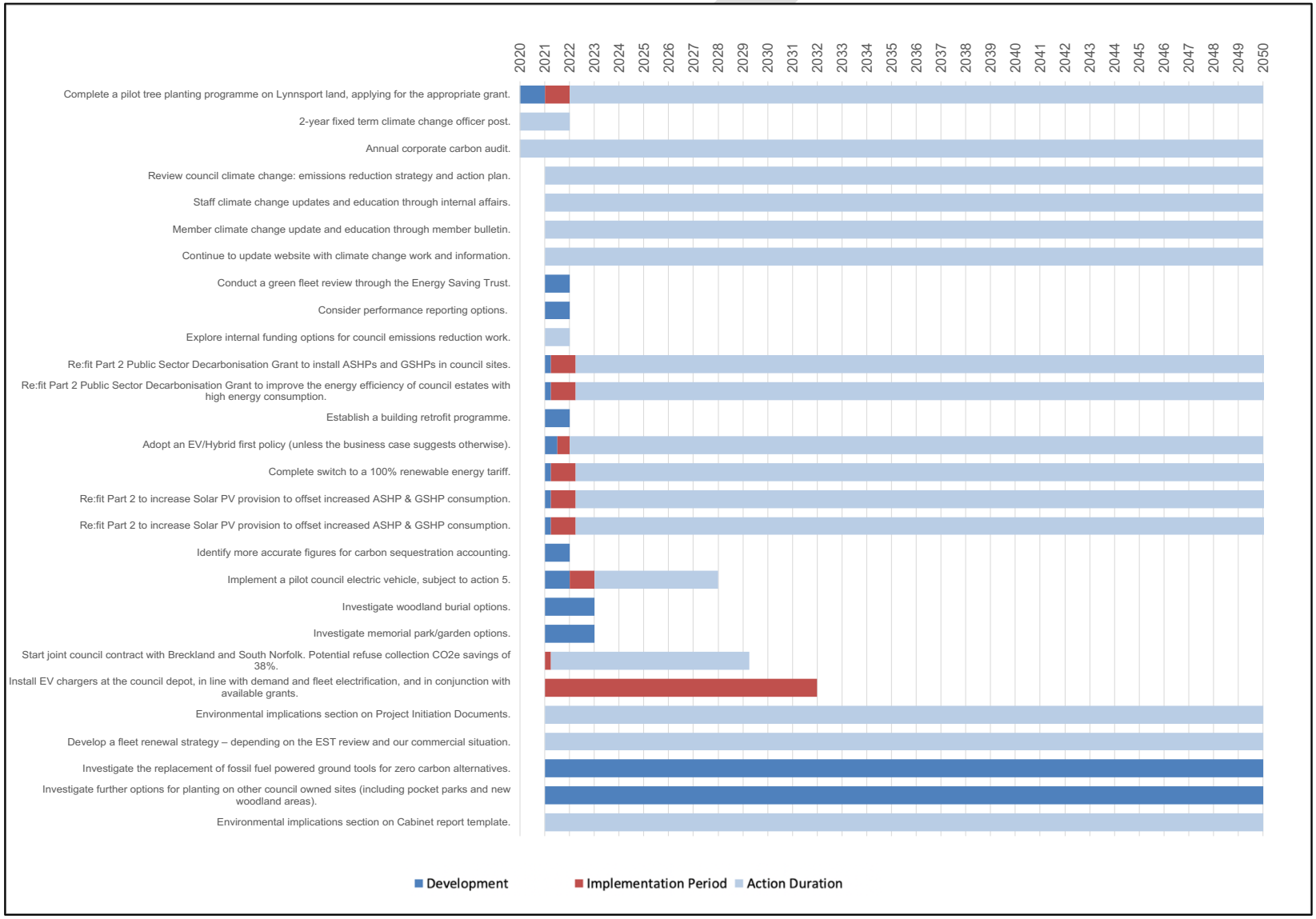
[12] Potential link to number 27.
[13] Cost is dependent on canopy cover requirements, ranging from £10k - £70k.

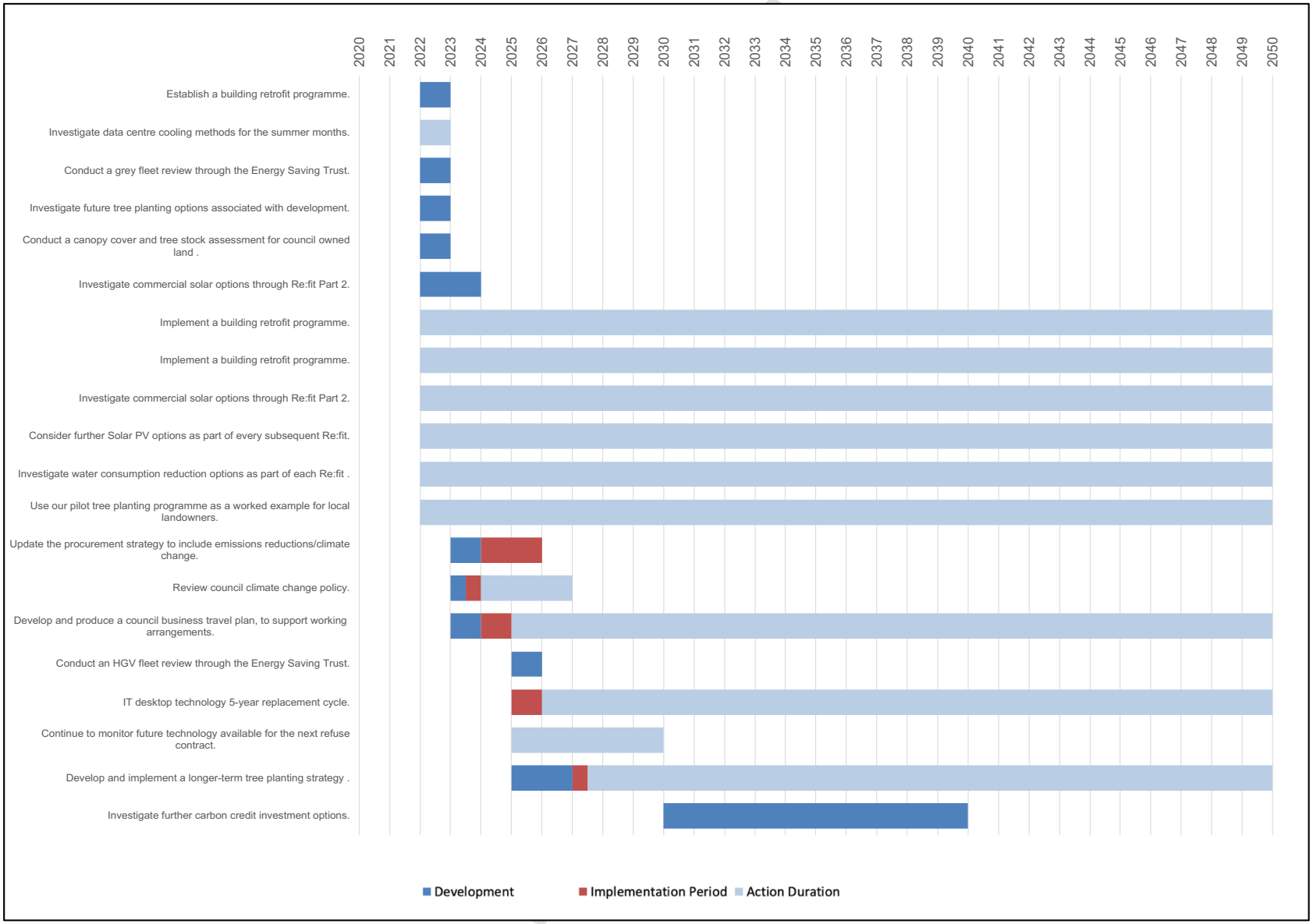
		41. Review council climate change: emissions reduction strategy and action plan.	Climate Change	2024	n/a
		42. Consider performance reporting options.	Climate Change	2021	n/a
		43. Environmental implications section on Cabinet report template.	Climate Change	2021 onwards	n/a
		44. Environmental implications section on Project Initiation Documents.	Corporate Projects	2021 - 2050	n/a
		45. Annual corporate carbon audit.	Climate Change	2020 - 2050	n/a
		46. 2-year fixed term climate change officer post now made permanent.	Environmental Health / Climate Change	2020 onward	n/a
		47. Staff climate change updates and education through internal affairs.	Climate Change	ongoing	n/a
		48. Member climate change update and education through member bulletin.	Climate Change	ongoing	n/a
		49. Continue to update website with climate change work and information.	Climate Change	ongoing	n/a
		50. Explore internal funding options for council emissions reduction work.	Climate Change	ongoing	n/a
Total Cost of BCKLWN Emissions Reduction Actions				**£188,500**	

8.2. Possible BCKLWN emissions reduction pathway



8.3. Example BCKLWN emissions reduction action plan implementation

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Establish a building retrofit programme.
Investigate data centre cooling methods for the summer months.
Conduct a grey fleet review through the Energy Saving Trust.
Investigate future tree planting options associated with development.
Conduct a canopy cover and tree stock assessment for council owned land .
Investigate commercial solar options through Re:fit Part 2.
Implement a building retrofit programme.
Implement a building retrofit programme.
Investigate commercial solar options through Re:fit Part 2.
Consider further Solar PV options as part of every subsequent Re:fit.
Investigate water consumption reduction options as part of each Re:fit .
Use our pilot tree planting programme as a worked example for local landowners.
Update the procurement strategy to include emissions reductions/climate change.
Review council climate change policy.
Develop and produce a council business travel plan, to support working arrangements.
Conduct an HGV fleet review through the Energy Saving Trust.
IT desktop technology 5-year replacement cycle.
Continue to monitor future technology available for the next refuse contract.
Develop and implement a longer-term tree planting strategy .
Investigate further carbon credit investment options.
Development
Implementation Period
Action Duration

8.4. Phase 2: Reducing district emissions

= 10 Point Plan Policy Proposals

Scope	Emissions Source	Actions	Lead Department	Timeline
Industry and Commercial	Electricity, Gas, Large Industrial Installations, Other Fuels & Agriculture.	1. 40GW offshore wind, with 1GW of floating offshore wind.	Central Government	2030
		2. Test 20% hydrogen blend to gas in heating trials.	Central Government	2023
		3. Funding for Nuclear e.g., Hinckley Point C	Central Government	2025
		4. 5GW low carbon hydrogen production capacity	Central Government	2030
		5. Four carbon capture and storage clusters operational.	Central Government	2030
		6. Aim to be first country to commercialise nuclear fusion.	Central Government	2040
		7. £100million for energy storage and flexibility innovation.	Central Government	n/a
		8. Consider CCC 6th carbon budget policy and guidance.	Climate Change	2021
		9. Consider 10-point plan policy and guidance.	Climate Change	2021
		10. Engage with the LEP clean growth strategy and monitor through the NCCP.	NCCP / Climate Change	ongoing
Transport	A Roads, Minor (B&C) Roads & Other.	11. Ban on new petrol and diesel car and van sale.	Central Government	2030
		12. £120million towards 4,000 British zero emission buses.	Central Government	2021
		13. Over 100 miles of safe and direct cycling and walking networks.	Central Government	2025
		14. £1billion for electrification.	Central Government	n/a
		15. £1.3billion to accelerate EV charging infrastructure.	Central Government	n/a

		16. £5billion on buses, cycling and walking.	Central Government	n/a
		17. £4.2billion on city public transport.	Central Government	n/a
		18. £20million across trials for zero emissions HGVs.	Central Government	n/a
		19. Develop and publish car parking strategy.	Corporate	2021 - 2022
		20. Investigate work areas through the Norfolk Climate Change Partnership.	NCCP	2022 - 2025
		21. Through NCCP take forward EV charging network options across Norfolk.	NCCP	2021 onwards
		22. Monitor any National, Highways England and LEP policies & strategies.	Climate Change	2022 - 2050
		23. Development of NCCP bids regarding sustainable hydrogen infrastructure for transport	NCCP	2021 onwards
Domestic	Electricity, Gas & Other Fuels.	24. Heat and buildings strategy.	Central Government	2021
		25. Public sector emissions reductions by 50%, from 2017 baseline.	Central Government	2032
		26. 600,000 heat pump installations per year by 2028.	Central Government	2021 - 2028
		27. ECO extended to 2026.	Central Government	2021 - 2026
		28. Future Homes Standard implementation.	Central Government	n/a
		29. New homes upgrade grant and social housing decarbonisation fund.	Central Government	n/a
		30. Green homes grant LAD 1a & 1b through Norfolk Warm Homes Fund.	Housing	2021
		31. Green homes grant LAD 2 via the Greater South East Energy Hub in conjunction with social housing providers.	Housing	2021 - 2022
		32. Dedicated local plan climate change policy.	Planning Policy / Development Control	2021 - 2022

		33. Warm Homes Fund promotion and development in partnership with the lead authority.	Housing	2021
		34. HECA Report, Promoting ECOFlex and secure external funding where appropriate.	Housing	2021 onwards
		35. Continued engagement with Norfolk LA's with regards domestic energy efficiency projects and funding sources.	Housing / Climate Change	2021 onwards
		36. Explore opportunities for micro generation, e.g., solar collective purchasing scheme, promoting government grant funding etc.	Housing	2021 - 2025
		37. MT report with regards the enforcement of MEES regulations and HA2004 re. HHSRS 'excess cold'. Ensure consistency of enforcement with other LA's and relevant guidance. Promote legal requirements to landlords via relevant means.	Housing	2021 onwards
		38. Investigate options for district heating.	Planning	2021 - 2022
		39. Development of NCCP community renewal fund bid regarding community energy.	NCCP	2021 onwards
LULUCF	Natural Environment	40. Creation of new National Parks and AONBs.	Central Government	2021
		41. £40million second round green recovery challenge fund.	Central Government	2021
		42. £5.2billion in six-year flood and coastal defence programme.	Central Government	2021
		43. Initiate 10-year-long tern landscape recovery projects.	Central Government	2022 - 2024
		44. Protect and improve 30% of UK land.	Central Government	2030
	Cropland & Grassland.	45. Consider options for a tree canopy cover survey of the borough.	Open Space / NCCP	2023 - 2024
		46. Support the Fens Biosphere Project.	Climate Change / Environmental Health	2021 - 2050

		47. Engage with the National Farmers Union.	Climate Change / Environmental Health / NCCP	2025 - 2030
		48. Monitor government publication of the National Peat Strategy.	Climate Change / NCCP	2021 - 2023
Other	General Public Engagement.	49. Support engagement at local awareness group events.	Climate Change	2021 - 2050
		50. Continued promotion of resident carbon reduction measures through the website.	Corporate Web / Climate Change	2021 - 2050
		51. Conduct routine website updates	Corporate Web / Climate Change	2020 - 2050
		52. Development of an NCCP website.	NCCP	2021

9. Implementation

9.1. Staff resources

The implementation of this strategy and action plan will have significant implications on staff resources. At a minimum it will create additional work for service managers and officers at all levels of the council. The implementation of this strategy and action plan has the potential to create tasks and work that will require the equivalent of full-time positions to be completed.

In order to aid the implementation of this strategy this council will:

- Look to provide training for key council staff, in order to embed climate change and emissions reduction awareness from within the culture of the council.
- Look to provide council staff, members and the community with frequent updates on ongoing work.

Due to the unprecedented COVID-19 pandemic, we can expect our staff resources to be impacted. Staff may find themselves focusing on the situation response or being redeployed to aid other council service areas for the duration of the pandemic. We are unable to predict the duration of the pandemic and therefore, we cannot know how great the future impact will be on staff resources. Consequently, with finite staffing resources we will need to manage expectation around the delivery of this action plan.

Thus, with regards to the above reasons and the wider impacts of the pandemic such as a recession and changes to the council's work and staff priorities and practices, aspects of this strategy may be affected.

9.2. Finance

In order to successfully implement this strategy and action plan, financial stimulus is required. Our strategy and action plan will place a potential strain on other areas of the council's budget and risks redirecting funding from other activities.

In order to finance the successful implementation of our strategy, we will:

- Invest in projects that will provide revenue or financial returns for the council to reinvest into other emissions reduction ventures.
- Look to access grant funding for climate change activities as much as possible.
- Look to access government funded advice where relevant.
- Investigate joint working on projects to spread the cost and risk.
- Investigate setting up an internal climate change project fund.

Action plan options will only be taken forward if there is adequate finance available and staffing capacity.

10. Measuring and monitoring

This strategy and action plan will be updated every 3 years or sooner to accommodate any changes in national targets and legislation. We will also provide an annual update report detailing our work against this strategy and action plan. This update report will directly monitor and detail all of our work completed over the previous year and will provide any updates on timescales and targets for any applicable future work.

Our corporate carbon emissions will be reported annually through our carbon auditing framework. This will allow us to identify the extent to which we are reducing our emissions. We will be publishing an annual update on King's Lynn and West Norfolk District emissions, which will similarly monitor and track how emissions are changing over time.

10.1. Annual monitoring and reporting timeline

- June / July	Annual BCKLWN Carbon Audit
- August / September	Annual District Emissions Update Report
- October / November	Annual Strategy and Action Plan Progress Report

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12. Glossary

Term	Definition
Adapt	The process by which we adjust to new situations. For example, the adjustment to actual or expected climate change and its effects.
Anthropogenic	Anthropogenic refers to effects or processes derived from human activities. In relation to climate change, this refers to human induced warming and thus human induced climate change.
Atmospheric Concentration	The concentration of greenhouse gases in the earth's atmosphere, measured in parts per million (ppm).
Carbon Budgets	A restriction on the total amount of carbon dioxide the UK can emit over a 5-year time period.
Carbon Dioxide (CO_2)	Carbon dioxide is a gas found in our atmosphere. Its chemical formula is CO_2. It is a waste product in our bodies and is produced by burning fossil fuels.
Carbon Dioxide Equivalent (CO_2e)	This is a metric to measure carbon dioxide, methane and nitrous oxide based on their global warming potential. Methane and nitrous oxide are converted to equivalent amounts of carbon dioxide that would warm the earth to the same extent as carbon dioxide. This provides a common metric of measuring climate change effects of different gases.
Climate Change Act 2008	A United Kingdom act of parliament to ensure that the net UK carbon account is 100% lower than the 1990 baseline by 2050.
End-User Emissions	These are emissions accounted for according to the point of energy consumption (or the point of emissions if the emissions sources is not related to energy). This doesn't include the energy industry as emissions from the production of goods are assigned to where the production takes place.
Greenhouse Gases (GHG)	A greenhouse gas is any gas found in the atmosphere which absorbs heat. By absorbing heat, it thereby keeps the planet's atmosphere warmer than it otherwise would be.
Intergovernmental Panel on Climate Change (IPCC)	The IPCC is an intergovernmental body of the United Nations that works to provide scientific information to

	understand the scientific basis of the risks associated with climate change.
Kilo Tonnes (Kt)	A unit of mass equivalent to 1000 tonnes.
Kyoto Protocol	An international treaty effective from 2005 to 2020 (the end of the second commitment period). This treaty commits parties to reduce greenhouse gas emissions on the basis that global warming is occurring and that anthropogenic carbon dioxide emissions are the predominant cause of it.
Mitigate	To mitigate is to lessen the force of something unpleasant. In relation to climate change, mitigation refers to the measures used to limit the amount of greenhouse gases emitted into the atmosphere.
Net Zero	Net zero emissions are when human caused greenhouse gas emissions are balanced out by reducing and removing greenhouse gas emissions from the atmosphere. These human-caused greenhouse gases should first be reduced as close to zero as possible. Any remaining greenhouse gases should then be balanced with an equivalent amount of carbon removal.
Paris Agreement	An international agreement to keep the increase in global temperature to well below 2 °C above pre-industrial levels and pursue effort to limit the increase to 1.5 °C. Signed in 2016, this is the successor to the Kyoto protocol.
Per Capita Emissions	This is a measure of greenhouse gas emissions per person.
Post-Industrial	A time after the UK's industrial revolution. In relation to climate change, that is the UK's emissions levels after the industrial revolution.
Tonnes (t)	A unit of mass equivalent to 1000 kilograms.

Version control Document name	Climate Change: Emissions Reduction Strategy and Action Plan			
Description	This strategy and action plan outlines our approach to reducing our corporate emissions and influencing district emissions. This document provides specific actions to facilitate our phased approach.			
Responsible Officer	Dave Robson, Environmental Health Manager.			
Version number	Date formally approved	Reason for update	Author	Review date
v.01	_/_/2021	First version	H. Saunders / D. Robson / G. Greaves / D. Ess	_/_/2024