

From: Susan Carey, Cabinet Member for Environment

To: Cabinet Meeting

Subject: Kent County Council Net Zero Target Progress Report

Classification: Unrestricted

Past Pathway of Paper: n/a

Future Pathway of Paper: n/a

Electoral Division: County-wide

Summary: This paper provides an update on the progress towards the Council's target to achieve Net Zero carbon emissions by 2030, including the Section 31 grant of £20.6m awarded by the Department for Business, Energy, and Industrial Strategy (BEIS), to deliver a number of energy projects within the KCC estate and a further £1.2m for school site energy projects. This paper also provides an update on the progress made to understand the activity that will be required to achieve the Kent geographical area target of Net Zero by 2050.

Recommendation(s):

1) Cabinet is to be advised of the current programme activity and the progress made since full Council received the KCC Net Zero target proposal in July 2020.

1. Introduction

1.1 In response to emerging evidence and the Paris Agreement on climate change 2015, the UK government revised the Climate Change Act 2008 in 2019. This introduced into law the UK target of Net Zero carbon emissions by 2050. Alongside the 2050 Net Zero target, the Act also requires the government to set 5-yearly carbon budgets¹, to ensure the country remains on track to reach Net Zero. The Carbon Budget Order 2021 set the sixth carbon budget for 2033-2037, equivalent to a 78% reduction in UK emissions by 2035 compared to 1990 levels.

1.2 In November 2021, the UK will host the 26th UN Climate Change Conference of Parties (COP26) in Glasgow. The climate talks will bring together heads of state, climate experts and campaigners to agree coordinated action to tackle climate change. This includes the goals: securing global Net Zero by 2050 with ambitious 2030 emissions reduction targets; adapting to protect communities and natural habitats affected by climate change; mobilising finance to support

¹ A carbon budget places a restriction on the amount of greenhouse gases the UK can emit over a 5-year period. Under a system of carbon budgets, every tonne of greenhouse gas emitted between now and 2050 will count. Where emissions rise in one sector, the UK will have to achieve corresponding falls in another.

action; and finalising how partners across the globe will deliver the Paris Agreement.

- 1.3 In response to the Climate Change Act and ahead of COP26, KCC is building on its strong track record in leadership to reduce greenhouse gas emissions from both its own operations and geographical area. In May 2019, KCC recognised the climate and ecological emergency and supported a target of Net Zero emissions for the county by 2050. In September 2020, KCC set an accelerated target of Net Zero emissions by 2030 for its corporate estate and traded companies.
- 1.4 This commitment builds upon and accelerates previous activity to reduce carbon dioxide emissions from the Council's estate and activities. Since 2010 emissions have already been reduced by 73%, a significant achievement placing the Council in an excellent position to deliver KCC's accelerated Net Zero target.
- 1.5 KCC has already been recognised for its efforts this year, with the Low Carbon Kent team awarded the nationwide ADEPT² award for 'Delivering Clean Growth' in May for delivery of Low Carbon Across the South East (LoCASE) and other targeted sector activity. KCC have also been shortlisted for the prestigious LGC³ awards 2021 for excellence in the category of Climate Response. The results are due to be announced at a ceremony in London on 4th November.
- 1.6 Under the framework of the Kent Environment Strategy (KES) and the Energy and Low Emissions Strategy (ELES), the Sustainable Business and Communities Team has been leading both KCC's response to achieving the Net Zero target for our own estate, as well as the work to understand the Kent wide activity required.
- 1.7 In Autumn 2020, the Department of Business, Energy, and Industrial Strategy and Salix⁴ announced £1bn of grant funding which aligned with the Department of Business, Energy, and Industrial Strategy's new mission and priorities including tackling climate change. In December 2020, KCC acted swiftly and applied for £20.6m of projects for its own estate, plus a further £1.2m for schools-based projects.
- 1.8 Both applications were approved and on 1st March 2021 a Key Decision (decision number 21/00034) was taken by Susan Carey – Cabinet Member for Environment to accept the Section 31 Grant of £20.6m for KCC energy projects and £1.2m for school sites energy projects.
- 1.9 On 18th March 2021 the Environment and Transport Cabinet Committee resolved that the decision to accept the Section 31 Grant be noted. The full Grant funds were subsequently received.

2. Governance

- 2.1 The decision by the Council's Leader in 2019 to create the post of Cabinet Member for Environment demonstrates the importance placed on this agenda.

² The Association of Directors for Environment, Economy, Planning and Transport

³ Local Government Chronicle is a weekly news publication for local government officers and the organiser of the LGC annual awards which recognise the most exceptional local government talent and achievements.

⁴ Salix is a non-departmental body owned wholly by the Government who provide funding to the public sector to improve energy efficiency, reduce carbon emissions and lower energy bills.

Cabinet Members and the Environment & Transport Cabinet Committee receive periodic reports and a quarterly key performance indicator update, which tracks the Council's progress in reducing greenhouse gas emissions. In addition, the Kent Environment Strategy Cross Party Members Group provides a further opportunity to influence and support activity relevant to achieving the Kent and KCC Net Zero targets and wider environmental action.

- 2.2 The Kent Environment Strategy and the Kent and Medway Energy and Low Emissions Strategy delivery programme, including Net Zero targets, is overseen by the Kent and Medway Environment Group, a cross public sector senior forum chaired by the Chief Executive of Canterbury City Council, with updates provided to Kent Leaders every two months. This group is supported by the Climate Change Network, an officer level group with representatives from all Kent & Medway local authorities, NHS and blue light services.
- 2.3 The KCC net-zero plan is overseen by the KCC Environment Board, chaired by the Corporate Director for Growth, Environment and Transport and attended by senior officers across all four directorates. A visual KCC net-zero roadmap and action plan have been developed. (Appendices 1 and 2)
- 2.4 The Sustainable Business and Communities team within Growth, Environment and Transport Directorate act as the secretariat for the governance groups, facilitate partnership working and monitor and report on the overall programme for Kent Environment Strategy, the Kent & Medway Energy and Low Emissions Strategy, and Net Zero targets. The team have been successful over many years in securing external funding to deliver KCC, county and south-east wide climate change and carbon reduction programmes. In the last 12 months the County Council has secured £42.8 million, including extending the Low Carbon Across the South East (LoCASE) business support programme to a further three Local Enterprise Partnership (LEP) areas.

3. Planning to achieve Net Zero by 2030 for KCC

- 3.1 In response to the Council setting its own 2030 target, a new baseline using data from 2019-20 has been established to include emissions calculated from streetlighting and other highways assets' electricity use, all corporate buildings' energy use, fleet vehicle fuel, staff mileage claims, office waste, use of refrigerant gases in equipment and from KCC's Traded Companies.
- 3.2 At March 2021, greenhouse gas emissions for the KCC estate and operations were 15,677 tonnes carbon dioxide equivalent (CO₂e), a reduction of 29,590 tonnes CO₂e or 65% reduction compared to 2015.
- 3.3 The data from 2020 has been significantly influenced by COVID-19 restrictions, with emissions from KCC business travel reduced by 65%. It is anticipated that the introduction of a flexible working policy will minimise future emissions from business and commuting travel and enable a reduction in the need for office space reducing the associated emissions and costs from use of energy, water and building maintenance. A recent survey of staff across three offices has indicated that the shift to homeworking is likely to reduce overall emissions, with the emissions avoided by not commuting outweighing any increases in home energy use.
- 3.4 A KCC net-zero roadmap and action plan have been developed (Appendices 1 and 2) with good progress made in the last 12 months, including working more

closely with Infrastructure to develop and secure funding and resources for a programme of estate 'green energy' projects.

- 3.5 These plans are dependent on wider aspects such as the future KCC Estate Strategy, determining the number and type of buildings and staff facilities required, and the People Strategy determining the flexible working and staff travel policies. The plans are based on current knowledge of available technologies and will flex and develop over time as KCC makes changes to the way it operates, taking advantage of new technologies, opportunities and funding that come forward.
- 3.6 The £20.6m capital grant funding secured to date, makes a significant contribution towards the KCC target and it is anticipated that the projects will reduce carbon emissions from KCC's estate by 45%, some 7,097 tonnes of carbon dioxide (based on the current KCC emissions calculated by LASER⁵ Energy Management of 15,677 tonnes as the annual total to March 2021).
- 3.7 Alongside delivery of the Net Zero target, the proposed projects will reduce KCC's energy costs by £225,948 per annum and provide an income to KCC from two solar parks; stimulate the low carbon economy in Kent, create local jobs and set up some key development infrastructure to meet future energy challenges such as security of supply.
- 3.8 Project level funding has been organised into 11 workstreams by the programme team as shown in Appendix 3.
- 3.9 Natural solutions to climate change are also a key part of the KCC net-zero plan, with progress including actions to implement Kent's Plan Bee across the KCC estate, a Kent Tree Establishment Strategy being drafted by a KCC officer working group and a Kent Tree Strategy officer now recruited a new role which will identify funding opportunities and locations where trees can be established across Kent, including land owned by KCC. The County Council recently led a successful 'Treescapes' bid with Swale and Ashford Borough Councils to secure almost £300, 000 of funding.
- 3.10 In anticipation of the Environment Bill passing royal assent in October 2021, further activity is planned through the Kent Nature Partnership to develop a Local Nature Recovery Strategy and to seek countywide Local Planning Authority support to deliver 20% Biodiversity Net Gain for all new developments.

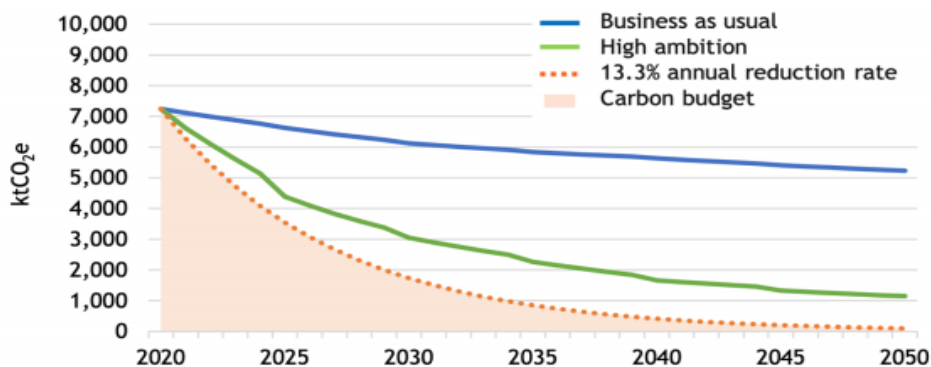
4. Planning to achieve Net Zero by 2050 for Kent

- 4.1 There can be no doubt that achieving net-zero emissions will be a significant challenge for the county. In addition to each organisation showing leadership by reducing emissions from its own estate and activities, the public sector working in partnership with the private sector and local communities, will also need to influence the more significant carbon emitting sectors which are industrial, commercial and domestic buildings' energy use, as well as on-road transport, including international freight.

⁵ LASER is a department within KCC's traded company Commercial Services Group

- 4.2 In a recent report 'Rising to the Climate Challenge' issued by the County Councils Network, concerns were expressed over the lack of clarity from Government on the role of Local Authorities outside of cities. It also highlighted a shortfall in the Government funding allocated to reach Net Zero by 2050. On average County Council area emissions reduced by 30% between 2005 and 2018. Kent compares favourably with a reduction in area emissions of 33%, although the challenge of reducing emissions from road transport remains significant with only a 5.6% reduction over the same period.
- 4.3 In support of the UK's COP26 Presidency, Kent County Council is working across sectors and joining forces with local authorities across Kent and Medway, businesses and residents to inspire action ahead of COP26. This includes projects and events to improve adaptation, countryside access, green infrastructure, EV charge points and the low carbon economy. A paper detailing the activity across Kent linking to COP26 will be prepared for Cabinet in October.
- 4.4 To identify the optimum pathway to Net Zero by 2050 and the role the public sector can play, consultants Anthesis were commissioned to deliver the **Kent and Medway Emissions Analysis and Pathways to Net Zero 2050 report** for the county. The results were presented to the Environment & Transport Cabinet Committee in June 2021. Anthesis are specialist consultants who were funded by the Department for Business, Energy, and Industrial Strategy to develop SCATTER; a free tool for local authorities to generate greenhouse gas inventories and model emissions reduction pathways.
- 4.5 The SCATTER pathways are intended to illustrate the scale of the challenge; focusing on 'what' needs to happen, rather than 'how' we make it happen; and to assist in prioritising interventions that are locally influenceable and necessary to deliver the required reductions in emissions.
- 4.6 Two pathways for Kent and Medway were considered in the report: Illustrated below in Figure 1, the business-as-usual pathway (blue line), projects a 44% reduction in emissions by 2050 against 2017 levels. The high ambition pathway (green line) projects an 88% reduction by 2050 against 2017 levels.

Figure 1 Net-zero pathways for Kent



- 4.7 The scale of interventions required by 2050 to meet the High Ambition pathway are set out in more detail in Appendix 4.

Example activities include:

Buildings: thermal efficiency improvements to new-builds and through retrofit of existing buildings, switching away from gas technologies for heating and cooking, energy efficient appliances and lighting.

Transport: travelling less often and over shorter distances in all vehicles, switching to electric vehicles, modal shift away from private vehicles, improving freight emissions.

Renewable energy supply: scaling up the installed capacity of renewable technologies such as solar and wind.

Waste and industry: producing less waste, recycling more and shifting away from carbon-intensive fuels for industrial processes.

Agriculture and land use: increasing tree coverage and carbon sequestration, improving land and soil management, shifting to less carbon-intensive livestock management.

4.8 The report concludes that based on information and technologies available now, under the high ambition pathway, the emissions profile of Kent and Medway is predicted to change significantly but will still not reach carbon neutrality by 2050.

4.9 Under the high ambition pathway, the report estimates that annual emissions in 2050 will be around 1,155 kilotons of carbon dioxide equivalent (ktCO₂e), with the bulk of these emissions at that time coming from domestic buildings (50%) and the industrial and commercial sector (39%). Just 11% of emissions will come from transport, largely freight transport. Until further technological interventions become viable, further activities will be needed to offset these residual emissions to achieve Net Zero emissions by 2050.

5. Financial Implications

5.1 When establishing the basis to set the KCC estate's Net Zero target, modelling by LASER Energy Management completed in 2020, estimated that investment in the region of £27m will be needed to enable KCC to meet the Net Zero target for its own estate by 2030. These costs are being updated over time as we gain more certainty about KCC's future estate plans and opportunities presented by new technologies, and to factor in the changes in energy costs and those of new technologies, which will also change as they become the norm.

5.2 The capital grant of £20.6m awarded represents a significant funding contribution to help meet KCC's Net Zero target and the projects will be implemented and start reducing carbon emissions by 2022. It is currently estimated that the projects will produce in the region of £47m surplus to KCC over 30 years. For the period 2023 to 2030 the solar projects generating income provide the opportunity for further investment in energy projects required to meet Net Zero, avoiding the reliance on bids for external grants or other funding routes, which may come with additional costs or restrictive criteria.

5.3 The costs to achieve Net Zero for the geographical area of Kent cannot be easily determined. The level of detailed data needed to provide a credible figure over a 30-year period is not available, combined with significant uncertainties such as: future Government policies, plans and funding, changes to statutory duties, commercial markets and the availability and likely impact of future unknown technologies.

6. Policy Framework

6.1 The environment is one of the five main Challenges set out in the Interim Strategic Plan that KCC is facing over the next 18 months. Tackling the climate emergency is identified as an urgent priority.

6.2 In response to the UK Climate Emergency, KCC has committed with the support of local authority partners, through the framework of the Kent & Medway Energy and Low Emissions Strategy to set and agree a target of Net Zero emissions by 2050 for the geographic county of Kent. KCC has also committed as described earlier to set an accelerated Net Zero target for its own estate and activities and those of its traded companies by 2030.

7. Equalities Impact assessment

7.1 An Equalities Impact Assessment was undertaken on the Energy and Low Emissions Strategy, which the Net Zero target and plans underpin. Individual projects and programmes agreed as part of net-zero approach receive their own Equalities Impact Assessment

8. General Data Protection Regulation considerations

8.1 Where personal data is to be processed for an individual project to deliver the net-zero plans, a Data Protection Impact Assessment will be completed.

9. Conclusion

9.1 KCC has made rapid progress in developing and initiating action plans in the 12 months since the KCC Net Zero target was set, including securing a significant proportion of the capital funding needed to implement renewable energy and energy efficiency projects to deliver Net Zero by 2030.

9.2 There is also added clarity on the scale of actions required to achieve Net Zero by 2050 for the geographical area of Kent and this provides additional evidence to support all local authorities to develop local area-based plans as well as informing the need for partnership action.

9.3 Officers are planning a full programme of projects, events and communications to inspire action across the county in support of COP26. A paper describing these will be brought to Cabinet in October.

9.4 KCC continues to reduce greenhouse gas emissions as planned and is ahead of the previous 5-year target set in 2016 (part of this out performance is a result of Covid 19 restrictions). The KCC Net Zero target will be reported on quarterly, and this key performance indicator will continue to be included in the Council's

quarterly performance report. The first set of monitoring data, to include additional emissions data, including those from the Council's traded companies will be for the period April - June 2021 and will be reported in late Autumn.

10. Recommendation(s)

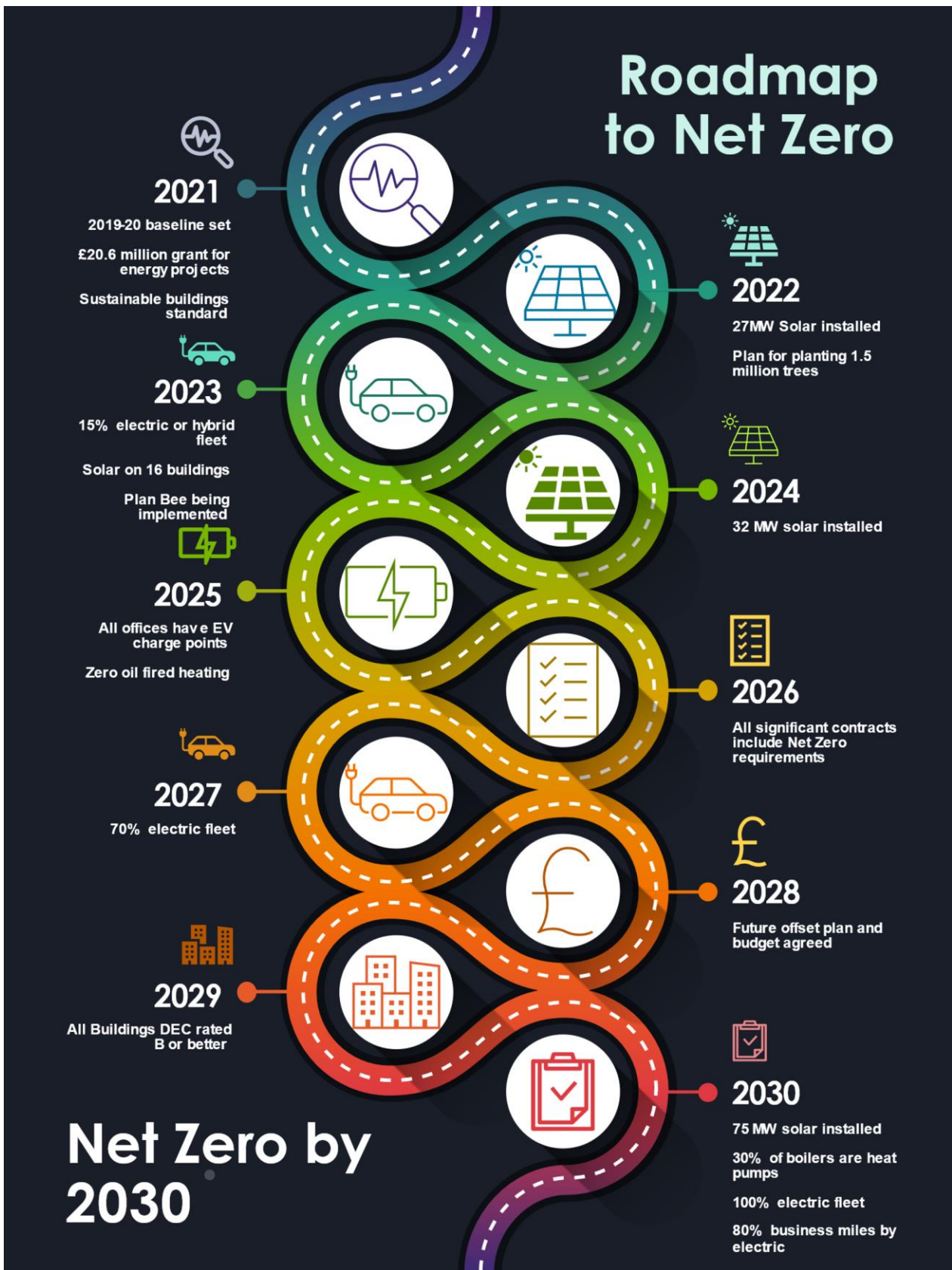
1) Cabinet is to be advised of the current programme activity and the progress made since full Council received the KCC Net Zero target proposal in July 2020.

10. Contact details

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Appendix 1 KCC Roadmap to Net Zero

Roadmap to Net Zero



Note: Based on what is known now and net-zero modelling, which includes some assumptions. Future actions and milestones may be subject to change as new information, funding and policy decisions come forward.

Appendix 2 KCC net-zero action plan status at August 2021

KCC net-zero action plan	Senior Champion	Officer Lead	Target completion or next key milestone	Funding Source(s)	Progress to August 21
Policy Actions					
Develop, test, and implement an Environment & Climate Change Impacts Assessment	C Maynard (interim)	S Deakin/D Kapaj	March 22	N/A- Officer time	Decision tree and specification for e-form agreed ICT development lead time TBC Guidance and training materials being scoped and drafted
Embed net-zero within procurement contracts	C Maynard (interim)	C Wimhurst /J Brittle	Spring 22 milestone	N/A- Officer time	Working to embed requirements within commissioning framework and standard procurement terms/key documents Specialist inputs to specific tenders as needed eg Hard Services FM contract
Develop net-zero design statement for new build and significant redevelopment schemes	S Holt-Castle	J Taylor	March 22	N/A- Officer time	Complete
Develop minimum design standards for KCC new build projects and additional funding mechanisms that make this achievable (corporate estate and schools)	S Holt-Castle	J Taylor/ S Deakin/ B Stewart	March 22	Funding for consultancy needs (TBC)	Development of draft standard proceeding well and steps to test agreed
Transport Actions					
Reduce Business miles travelled by 33% by 2030 (Dependent on the review T&Cs and flexible working and staff travel policies)	A Beer	I Allwright	2030	N/A- Officer time	Terms and conditions review presented to Personnel Committee. Future flexible working/ travel policies to include clear expectations on reduced use of car travel – potential to reduce commuting travel by up to 50%

80% of Business miles to be via electric vehicle by 2030 - scope out opportunity for electric only lease car scheme	A Beer	D Kapaj / P Royel	2030	N/A- Officer time	HoldCo established a pilot electric lease car scheme with Cantium Business Solutions in mid-June. Business case to be reviewed by officers within KCC by March 22.
100% of fleet miles to be via electric vehicle by 2030 - cross Directorate procurement approach (adoption of some HE funded electric vans from Jan 2023)	C Maynard (interim)	D Kapaj/ R Clark	2030	KCC Capital or revenue - existing vehicle refresh programme	Working group established June 21 Baseline data obtained (390 vehicles) and verified by services Developing a transition plan for all services
Transport Actions					
Improve Active Travel Facilities at appropriate KCC locations (Minimum standard to be agreed)	R Spore	B Bolton/ A Carty	Phased plan aligned with future KCC estate strategy	KCC Capital or Climate Change Fund	Minimum Standard agreed by March 2022 Included in infrastructure net-zero plan Providing inputs to plans for future office strategy Need to establish staff demand for facilities
Install EV charge points at appropriate KCC locations (For staff/visitors)	R Spore	B Bolton / A Carty	Phased plan aligned with future KCC estate strategy	KCC Capital or Climate Change Fund - limited OLEV grant funding available	Included in infrastructure net-zero plan Providing inputs to plans for future office strategy Need to establish staff demand for EV chargepoints
Provide alternative travel options at appropriate KCC locations eg car clubs, bike hire etc	R Spore	B Bolton / A Carty	Phased plan aligned with future KCC estate strategy	Pending evaluation of grants available - may need pump prime funding	Included in infrastructure net-zero plan Providing inputs to plans for future office strategy
Review opportunities to expand Staff Rewards programme to incentivise net-zero actions/behaviours	A Beer	L Horne/ C Miller/ D Kapaj	March 2022	N/A- Officer time	Initial review completed Paused due to officer resources prioritised to other projects

Energy Efficiency Actions					
Roll out LED lighting in KCC buildings where practicable	R Spore	R Szmajda / S Baggs	Current phase - March 2022	Salix energy investment fund & Public Sector Decarbonisation grant	Agreed target buildings for investment during 2021 Further upgrades to be included in future estate and investment strategy
Solar PV electricity generation Actions					
Enable 75MW of solar parks to help meet KCC's energy needs	S Holt-Castle	H Shulver/ J White / S Baggs	Phase 1 - March 2022 Phase 2 – 2023-24	Public Sector Decarbonisation grant	£16.6 million Public Sector Decarbonisation Fund awarded for two Solar Parks (Phase 1) Further work in progress to prepare phase 2 sites
Install solar on roofs of 16 KCC buildings	R Spore	R Szmajda/ S Baggs	Phase 2 – March 2022 Phase 3 – March 2023	Public Sector Decarbonisation grant	5 installations completed April 2021 Part of £20.6 million Public Sector Decarbonisation Fund awarded includes phase 2 solar projects (7 buildings) Phase 3 funding to be secured.
Estate Rationalisation					
Reduce KCC buildings estate by 2030 (Provide the ICT technologies and rationalise/refit workspaces to enable an increase in remote/flexible working practices)	R Spore	R Anderson	Initial office phase by 2023	KCC capital/capital receipts?	Included in infrastructure net-zero plan Pending implementation of future office strategy (% reduction TBC)
Transition to Low Carbon Heating					

Build Maidstone heat network, subject to ongoing feasibility and development	S Holt-Castle	H Shulver / J White/ S Baggs	2023	Grant funded at feasibility stage £3.4m capital grant secured	Paused project due to escalating costs Further capital funding to be secured to progress
Switch remaining Oil boilers to gas/heat pumps, where practical	R Spore	J Taylor / S Baggs	2025	KCC Capital/Salix fund	Less than 6 sites use oil – 2 sites have boiler conversions in progress.
Move 30% of Gas heating to Heat Pumps, insulate those buildings for 20% reduction in heat loss	R Spore	J Taylor/ S Baggs	Phase 1 - March 2022 (6 heat pumps) Future phases by 2030	KCC Capital/Salix grant fund	Part of £20.6M Public Sector Decarbonisation Fund awarded for 6 heat pumps
Switch oil fuelled back-up generators to low carbon alternatives	R Spore	J Taylor / S Baggs	2030	TBC	Alternative technology and fuel options being explored
Green Infrastructure Actions					
Implement Kent's Plan Bee action plan across KCC managed land including highways, PROW, corporate estate and country parks	S Holt-Castle	E Milne	2023	Officer time	Highways working with Kent Plan Bee officer/Kent Wildlife Trust to develop pollinator verges, green roof bus shelters and public engagement for North Kent Fasttrack route Baseline of KCC estate/TFM land management practices completed and draft specification provided for TFM contract refresh
Work with Districts to secure a policy commitment to 20% biodiversity net gain in Kent	S Holt-Castle	E Milne	2023	Officer time?	Assessment of impact of 20% BNG target on development viability to be commissioned over the summer 2021.

Ensure relevant aspects of the KNP Kent Biodiversity Strategy are embedded within all relevant KCC services	S Holt-Castle	E Milne	Ongoing	KCC Climate change fund, KNP base budget and officer time	On hold pending what will be required under The Environment Bill, which is expected to be a countywide Local Nature Recovery Strategy
Development of Kent Local Nature Recovery Strategy	S Holt-Castle	E Milne	2022	KCC Climate change fund and officer time	A Kent Nature Partnership task and finish group has been established. Kent Wildlife Trust are undertaking mapping work to inform the spatial elements and KCC are developing draft guiding principles, both due September.
Develop a delivery plan that will implement and monitor Kent target of establishing 1.5 million trees (one per Kent resident)	S Holt-Castle	E Milne	2022	KCC Climate change fund and officer time	Draft Kent Tree Establishment Strategy produced. Formal approval expected late summer/early autumn. Recruited a Tree Strategy Officer to deliver Strategy and secure new funding.
Communications Actions					
Develop and communicate case studies to promote net-zero actions and behaviours	A Beer	L Taylor	Ongoing	N/A - officer time	KCC environment pages refreshed and Kent Green Action social media channel regularly updated. Proposal for refresh of KCC Green Guardian (environmental champions) scheme agreed.
Develop a net-zero awareness raising programme for KCC Members and staff	A Beer	L Taylor	Ongoing	N/A - officer time	Initial Member induction session All staff communications to align with Kent Green Action

Appendix 3: Workstream, Project Detail and Associated Funding Allocations for the BEIS Public Sector Decarbonisation Section 31 Grants

Workstream	Workstream Value	Project	Project Value
1: West End Solar Park (Canterbury)	£14million	Construction of a 20MW solar farm	£14million
2: North Farm/Kings Hill Solar Park (Tonbridge & Malling)	£2.58million	Construction of a 3MW solar farm	£2.58million
3: Connection to the Maidstone District Heat Network	£1.3million	Connection of Invicta House, Sessions House and the Kent History and Library Centre	£800k
		Installation of an additional water source heat pump	£500k
4: Digital Autopsy Building (Maidstone)	£157.5k	Installation of an air source heat pump to the DA building	£120k
		Installation of solar PV to the DA building	£37.5k
5: Turner Contemporary (Thanet)	£104.5k	LED lighting (Phase 1)	£104.5k
6: Paddock Wood Community Centre (Tunbridge Wells)	£97.5k	Installation of an air source heat pump	£65.5k
		Installation of solar PV	£30.7k
7: Oakwood House (Maidstone)	£1.49million	Ground source heat pump	£235.5k
		Energy upgrade works	£35k
		Building management system	£202.5k
		Hot water distribution improvements	£125k
		Pipe insulation	£78k
		Purchase of ventilation fans	£135k
		Ventilation distribution system	£333k
		Electricity supply upgrade	£250k
8: LED Lighting in KCC buildings	£89k	Brook House (Whistable)	£43.5k
		Ashford Highways Depot (Phase 1)	£45.5k
9: Installation of Heat Pumps on KCC buildings	£415.5k	Air source heat pump at Ashford Highways Depot	£260k
		Ground source heat pump at the Swattenden Outdoor Centre (Tunbridge Wells)	£155k
10: Installation of Solar PV on 5 KCC buildings	£407.5k	Brook House (Whitstable), Ashford MASH, Swanley Link, The Sunrise Centre (Tunbridge Wells) and Kent Scientific Services (West Malling)	£407.5k
11. Schools Programme	£1.2million	Cobham Primary ground source heat pump	£105k
		Southborough Primary oil to gas heating	£169.5k
		Palace Wood Primary (Maidstone) oil to gas heating	£140k
		Wickhambreaux Primary double glazing	£50k
		The Archbishops School (Canterbury) double glazing	£250k
		St Anthony's School (Margate) double glazing	£250k
		West Kingsdown Primary insulation and double glazing	£75k
		Kemsing Primary insulation and double glazing	£35k
		Herne Bay High solar PV	£125k
		Briar Primary (Herne Bay) solar PV	£18k

Appendix 4: High ambition interventions at 2050

Sector	Measure	2050 intervention
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Sector	Measure	2050 intervention
Domestic buildings	More energy efficient homes & new builds	<ul style="list-style-type: none"> • 75,700 “medium” retrofit • 605,900 “deep” retrofit • 181,300 new builds to PassivHaus³ standard
Buildings	Reduced energy demand for heating, cooling & hot water	<ul style="list-style-type: none"> • Domestic: 43% reduction • Non-domestic: 40% reduction
	Reduced energy demand for appliances, lighting and cooking	<ul style="list-style-type: none"> • Domestic: 73% reduction • Non-domestic: 25% reduction
	Switching from gas heating systems	<ul style="list-style-type: none"> • Domestic: 100% of heating systems are electrified • Non-domestic: 80% of heating systems are electrified, remaining 20% supplied by Combined Heat and Power (CHP) systems
	Shifting from gas to electric cookers	<ul style="list-style-type: none"> • Domestic: 84% increase in electric fuel usage for cooking • Non-domestic: 33% increase in electric fuel usage for cooking
Transport	Travelling shorter distances	<ul style="list-style-type: none"> • 25% reduction in the average number of passenger miles travelled per person
	Driving less	As a percentage of passenger mileage: <ul style="list-style-type: none"> • 10% active transport • 25% public transport • 65% private vehicle
	Switching to electric vehicles	<ul style="list-style-type: none"> • 100% of private vehicles, buses and trains are electric (though this transition is heavily frontloaded)
Freight transport	Improving freight emissions	<ul style="list-style-type: none"> • 28% increase in waterborne freight mileage • 22% decrease in road freight mileage • 75% decrease in energy used per mile travelled • 234% increase in fuel use at UK ports for <i>international</i> shipping (based on switching away from road and air freight movements)
Waste	Producing less waste	<ul style="list-style-type: none"> • 57% reduction in the volume of waste
	Increased recycling rates	<ul style="list-style-type: none"> • 85% recycling rate
Industry	Switching from fossil fuels	<ul style="list-style-type: none"> • 15% reduction in oil fuel usage • 2% increase in electricity consumption • 38% increase in the use of natural gas
	More efficient processes	Process emissions reduced: <ul style="list-style-type: none"> • 30% for chemicals • 21% for metals • 25% for minerals • 80% for other industries

Sector	Measure	2050 intervention
Renewable energy supply	Wind	<ul style="list-style-type: none"> Local wind: 550 MW installed capacity Large installations (on- and off-shore): 1,466 MW installed capacity
	Solar PV	<ul style="list-style-type: none"> Local PV: 4,171 MW installed capacity Large scale PV: 242 MW installed capacity
	Biomass	<ul style="list-style-type: none"> Declining usage, having displaced fossil fuel sources in power stations
	Other renewables	<ul style="list-style-type: none"> Local hydro: 69 MW installed capacity Large-scale hydro: 47 MW installed capacity
Agriculture & land use	Forest coverage & tree planting	<ul style="list-style-type: none"> Increase in lone tree coverage to around 40 lone trees per hectare 24% increase in forest coverage
	Land & livestock management	<ul style="list-style-type: none"> 48% decrease in livestock numbers 7% decrease in grassland; 1% decrease in cropland

3 Passivhaus is an international energy performance standard with buildings constructed to dramatically reduce the requirement for space heating and cooling, whilst also creating excellent indoor comfort levels