Next Steps to Net Zero
Carbon Reduction Plan
April 2021 – March 2026

Harlow Council
Working together for Harlow

FOREWORD

Over the past ten years, Harlow Council has worked to reduce the carbon emissions from its own operations, achieving a cumulative 39% reduction on 2014/15 baseline emissions during the previous Carbon Management Plan periods. While this is good progress, there is still a significant amount of work left, with the most complex and costly decisions yet to be taken.

Tackling climate change is this century's single most pressing global challenge. How that challenge is met by national and local government and internationally will define the world in which we all live and will impact the lives of people for generations to come.

Harlow Council has an opportunity and obligation to demonstrate civic leadership in embracing that challenge by charting a course to Net Zero carbon emissions. Getting it right is critical to making Harlow an even greater engine for opportunity and prosperity in the East of England.

Following the UK Government setting the Net Zero target in law in June 2019, it has been under a legal duty to do so by 2050 at the latest. The Council unanimously declared a Climate Emergency in July 2019.

Addressing the Council's own carbon emissions is critical to safeguarding the environment, and ensuring Harlow is a town fit for the future. Since 2011, the Council has set out five-yearly carbon reduction targets and made significant progress in reducing emissions.

This report identifies what carbon emission reductions the Council will achieve over the 2021-26 period, and begins the critically important work required to prepare to meet Net Zero. It sets out the commitment to achieve Net Zero by 2040.

To deliver this, the Council will take the following steps:

- Fitting no fossil fuelled boilers into operational buildings after 2025/26
- Buying no new carbon emitting vehicles after 2022/23
- Achieving Net Zero from its waste service during the lifetime of the next contract from 2029
- Developing a broader climate change strategy for the town
- Working with HTS to help them achieve Net Zero by 2040 and to identify a potential 12% saving during the lifetime of this Plan.

Cllr Alastair Gunn

Portfolio Holder for Environment

WORK TO DATE

The projects included within the previous two iterations of the Council's Carbon Management Plan have sought to address carbon emissions from generation, building infrastructure and some building systems. This has included switching to zero carbon electricity tariffs for all operational properties and installing smart meters to better manage and monitor energy usage (reducing CO2e emissions by 374 tonnes in 2019 and 509 tonnes in 2020), voltage optimisation within buildings to reduce wasted energy by ensuring power supplies are received at a lower and more optimised voltage (reducing CO2 emissions by 36 tonnes of CO2e per annum), and housing the services that Harlow Council provides more efficiently into fewer buildings (reducing CO2 emissions by 406 tonnes CO2e per annum since 2015/16).

Building fabric improvements to insulation and lighting have also helped to mitigate emissions. LED lighting installations within the Civic Centre and Playhouse have proved particularly successful and suitable for replication across other sites.

TARGETS FOR 2021 – 2026

Previous Carbon Management Plans have achieved significant reductions in CO2 emissions through measures commonly termed as 'low hanging fruit', with relatively little cost to Harlow taxpayers or the resources of council officers. Eradicating the remainder of Harlow Council's emissions to reach Net Zero will require methodical and evidence-based planning, greater financial and operational commitments, and reliance on emerging technologies.

Therefore, Harlow Council's target for the 2021-2026 period will be to reach a 50% reduction in CO2 emissions from the 2014/15 2700 tonne baseline. This will mean a further reduction of 284 tonnes through the installation of solar panels and LED lighting, the replacement of old gas boilers with more efficient ones, and working with HTS to identify further savings.

This target is achievable and takes into account the current state of development of those technologies, which we will rely on in the future to replace residual emissions sources including gas heating and transport fuels. The Council is committed through careful planning to making the right choices, at the right time to achieve Net Zero whilst protecting hard working Harlow taxpayers from unnecessary costs.

TARGET FOR ACHIEVEMENT OF NET ZERO

Until now, Harlow Council had not set a date by which it aspired to achieve Net Zero. This report commits the Council to achieving Net Zero by 2040, at the latest. As well as focusing on delivering the CO2 emission reductions identified for this Carbon Management Plan, Harlow Council will begin the forward-looking and longer-term work necessary to meet or exceed this final deadline.

At present, there are a variety of technologies with the potential to take Harlow to zero emissions, but it is not yet clear which of these will work best, and indeed a combination may be required. Harlow Council will closely monitor the emerging technologies that will facilitate our path to Net Zero, so that we are ready to take full advantage of them when it is appropriate for us to do so.

Government initiatives related to carbon reduction are currently focusing on investment in heat networks and electric vehicle technologies; the largest and most complex areas of emissions that this Plan addresses, demonstrating that Harlow is in step with the national picture.

Background and context

Background

1. In 2010, the Council participated in the Carbon Trust's Local Authority Carbon Management Programme which provided the Council with relevant support and guidance on carbon reduction. A team of Officers within the Council were involved in the Programme which created the Council's first Carbon Management Plan in 2011 and resulted in a number of actions being implemented across a spectrum of Council activities and set a target of reducing operational carbon emissions by 25% by 2015/16. By 2014/15 this target had already been achieved. A further Carbon Management Plan, set in 2015, set out the Council's strategy for its carbon reduction over the following five year period.

2. In July 2019 a Full Council meeting passed a motion declaring a climate change emergency. The motion stated that

   "This Council believes that climate change is one of the most significant threats facing the world. One of the largest factors contributing to climate change is man-made emissions, especially those relating to the use of non-sustainable power sources. This Council recognises that action must be taken quickly in order to prevent climate change from causing irreversible damage to the planet. It also recognises the numerous social benefits which are brought about by reducing greenhouse gas emissions such as better air quality. This Council believes it is still possible to restore a safe climate and therefore declares a climate emergency"

3. The declaration included two overarching principles to

   a) *Aim to reduce Harlow's net carbon emissions as far as possible;*
   b) Reduce the Council's carbon footprint at a greater rate than it is already committed to doing so.

4. **It is now proposed that these principles are replaced by an unambiguous target of Harlow Council, as an organisation, achieving Net Zero carbon emissions by 2040.**

5. A draft initial Climate Change strategy was approved by Cabinet Overview Working Group in August 2019; this identified three main work streams: Property, Environment and Community Leadership. The below actions were completed in the 2019/20 financial year:

   a) Creation of a program of new tree and hedgerow planting across the town, planting 5,100 trees in 2019/20.
   b) A commitment from HTS to move towards the introduction of an electric vehicle fleet.
   c) Reaffirmation of its commitment to the Garden Town development's principles of sustainable development and transport, as set out in the Harlow & Gilston Garden Town vision statement at the Cabinet meeting of March 2019.

d) Eliminated the use of single use plastics in line with the government ban across all public council buildings in October 2020, ahead of the national implementation date of April 2021.

Context - What is the UK position?

6. In June 2019 Parliament set in law a commitment to reach Net Zero emissions by 2050. This is quantified as a reduction of at least 100% on the carbon emission levels of 1990. In order to meet this target the UK government is taking a broad approach which includes carbon budgeting, investment in green skills and jobs and engaging citizens to identify and prioritise actions to achieve Net Zero.

7. Under the Climate Change Act 2008 (the 2008 Act), the Government must set five-yearly carbon budgets, twelve years in advance, from 2008 to 2050. A carbon budget places a restriction on the total amount of greenhouse gases the UK can emit over a 5-year period. The UK is the first country to set legally binding carbon budgets. In 2011 the first 'Carbon Plan' was issued which sets out how the government will meet the carbon budgets set from 2008-2027. The plan includes actions to achieve low carbon buildings, transport, industry, energy generation as well as actions relating to land use and waste reduction.

8. The UK Government has also set up a Green Investment Bank and has made available several tranches of funding designed to boost green jobs and skills. The Council is able to make use of a number of these funding schemes, including the Public Sector De-carbonisation Scheme and electric vehicle charging point grants.

9. A citizen's assembly (Climate Assembly UK) was formed in 2020 and produced a report entitled The *Path to Net Zero*. The report shows how a representative sample of the population believe the UK should meet its Net Zero emissions commitment with detailed recommendations across ten areas including: how we travel; what we eat and how we use the land; what we buy; heat and energy use in the home; how we generate our electricity; and greenhouse gas removals. Parliament will use the report to support its work on scrutinising the Government's climate change policy and progress on the target.

Context - Harlow's climate change strategy

10. The Council's actions in this Carbon Management Plan will sit underneath a future Climate Change Strategy. Within the 2021/22 financial year a broader report will be brought forward which will set out a more detailed Climate Change Strategy looking at the broader actions the Council will take to minimise the effects of climate change (mitigation) and to help the environment, and those who live in it, to cope with the changes Climate Change brings (adaptation).

11. The Councils' Climate Change Emergency declaration initially focused upon the mitigation of climate change through reduction of emissions within the District and the carbon footprint of the Council's own operations. The impact of Climate Change on the local environment is not yet widely evident, however we will look to identify and monitor the effects that Climate Change is already having on the District, for example through extreme hot and cold weather events, localised

flooding or water shortages. Through early monitoring, the adaptations required to the natural and built environment will be fully understood and enacted in good time.

12. As part of this process the Council is a participating in the CDP Cities Climate Change Reporting programme from 2021. Disclosing environmental data through this process allows the Council to evaluate current performance, specifically in relation to adaptation, benchmarking performance against peers and identifying areas of opportunity. The first results from this programme will be available in the autumn of 2021.

13. This future strategy document will outline how the Council, through use of its own powers and through partnership working with others, will achieve a broader reduction in carbon emissions across the town beyond what the Council can achieve as an organisation. This will include use of the Council's planning policies such as a revamped Design Guide, the HGGT Sustainability Guide as well as use of environmental enforcement powers. It will also include details of measures to improve household recycling across the town. Broader environmental measures will also be identified such as encouraging the take up of electric vehicles through increasing charge points, an increase in tree planting and a focus on increasing the use of forms of sustainable transport. By focusing on both mitigation and adaptation the Council is seeking to reduce the impact of day to day living on the environment beyond that caused by greenhouse gas emissions. Consideration will also be given to how Harlow Council can move from achieving Net Zero to delivering Negative Zero emissions.

14. Climate change mitigation and adaptation actions will be identified under the key areas of Property and Staff Contributions, Environment and Transport and Community Leadership, and these key areas follow through to this Carbon Management Plan.

Harlow's Principles and Targets

15. Harlow's baseline for measuring reduction of carbon emissions was 2700 tonnes of CO2e. The Council's previous Carbon Management Plan (2016-21) set a target of reducing this by 25%. By March 2021, carbon emissions had reduced to 1634 tonnes – a reduction of 39%.

16. **The Council will set a target to reach Net Zero emissions from all of its own activities by 2040.**

17. For the Carbon Management Plan of 2021-26 a target of a further 15.6% reduction on the last recorded emissions baseline of 1634 tonnes is suggested, equivalent to 284 tonnes. This will achieve a 50% reduction from the 2014/15 baseline of 2700 tonnes. The roll out of LED lighting across Council buildings and the introduction of photo-voltaic cells to generate electricity will help to achieve this through reducing the emissions caused by transmission of energy consumed, and some return of electricity to the grid generated by onsite PV. Many of the 'quick wins' in carbon reduction have already been secured and further reductions will require substantial

investments. The main contributor to this will be a move away from gas fired boilers and into sustainable sources of energy.

18. This plan includes the following measures to contribute towards the 50% target:

Action	Tonnes CO2e saved per annum	% of 284 tonne savings target
PV panel installation	1	0.35
LED lighting installation at Civic Centre (2021/22)	0.5	0.17
Boiler replacement at Mead Park (2022/23)	74	26
Boiler replacement at Playhouse (2022/23)	90	31.6
Boiler replacement at Latton Bush Centre (2023/24)	50	17.6
LED lighting installation for Harlow Council owned streetlights	2	0.7
Potential HTS activities to be agreed	39	13.7
Total	256.5 tonnes CO2e savings identified	90.3% of savings target identified

19. The above table identifies that a further 27.5 tonnes of carbon savings for the 2021-26 period remain to be identified – 9.7%. A notable contributor to this will be the Civic Centre boiler replacement which has yet to go through a detailed options appraisal. Also, over the lifetime of a five year plan it will be impossible to identify everything at the beginning of the Plan period in a field where technology changes rapidly and further opportunities will be identified as a result. The targets and progress towards them will be reviewed on an annual basis.

20. Identifying carbon reduction projects in terms of payback period is a successfully adopted approach for the Council. The Council's Environment Reserve was established as an 'Invest to Save' fund for energy efficiency projects. The use of an earmarked reserve enables a clear overview of the savings being achieved and ensures that they are fed back into the Fund to enable delivery of future projects.

Actions – Mitigation and Adaptation

Strategic Partnerships

21. The Council recognises that it has a role to play both in its own right and in partnership with others to implement actions and support initiatives that will achieve its overriding principles. It is proud of the work already being done with key partners and will look to build upon these as it moves to its Net Zero emissions target:

    a) Harlow and Gilston Garden Town: In June 2021 Harlow Council reaffirmed its commitment to the Garden Town development's principles of sustainable development through adoption of the HGGT Sustainability Guide. This has now been adopted as a material consideration for planning applications across the town and sets clear standards for sustainability in new housing and commercial developments.
    b) Harlow Innovation Park: the first two buildings on the Innovation Park, Nexus and Arise were both designed to BREEAM 'Excellent' standard.
    c) HTS have set out a commitment to transfer its vehicle fleet to a fully electric one as soon as the range of vehicles required is available on the market.

Property and Staff Contributions

22. The Council's own estate has been the subject of two Carbon Management Plans since 2011, the first achieving a reduction of 25% on a 2008 baseline, the second a further 25% on a 2014 baseline. A number of significant investments have been made in buildings services, alongside behavioral changes and a move to using electricity generated from 100% renewable sources.

23. When considering carbon emissions from its own estate, the Council takes into consideration those areas which it can measure, and affect the levels of change required to reduce carbon emissions, including buildings and transport.

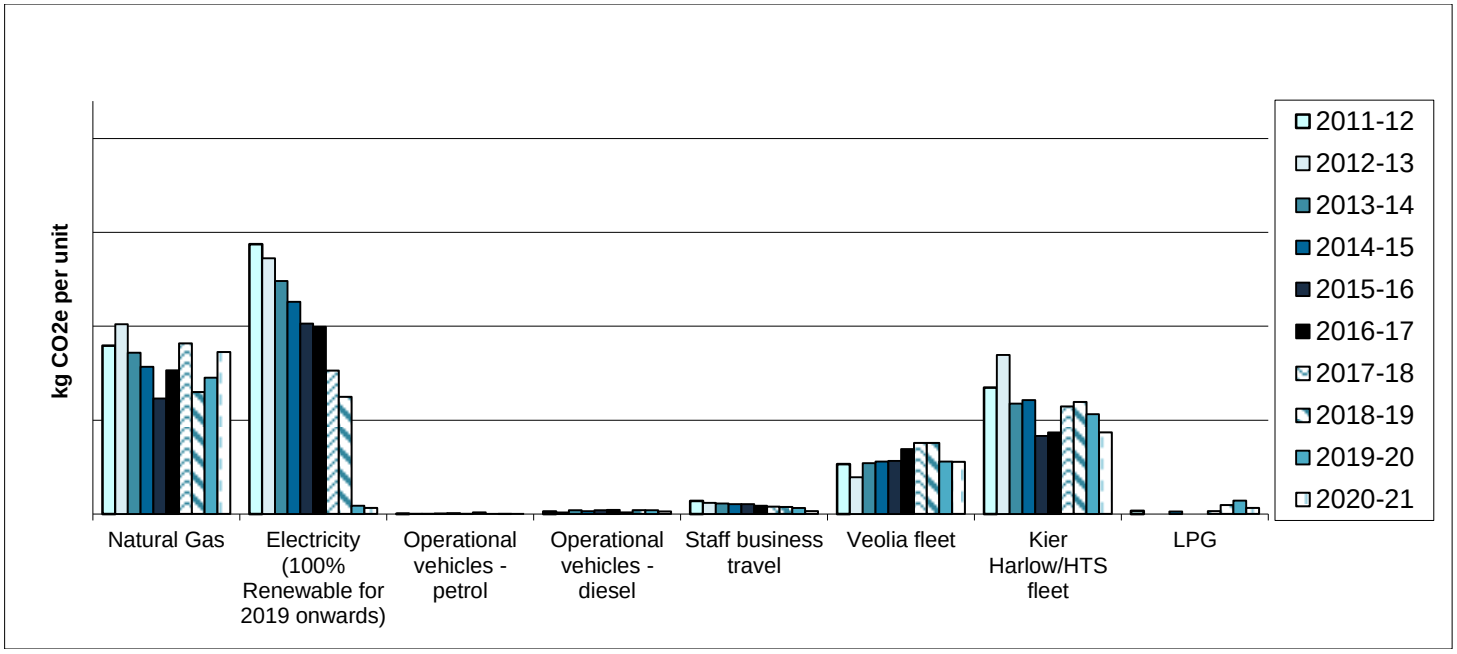
24. The Council's housing stock is considered within two year HECA reports which address the energy portion of the carbon footprint of the housing stock, and the associated issue of fuel poverty. So, as not to double count carbon, these emissions are reported separately. The Green Homes Grant Local Authority Delivery scheme will be utilised to improve energy efficiency in Council housing stock as well as the Council acting as a conduit for the funding rounds to secure funds for properties within Harlow under social housing registered providers and for private owner occupiers.

25. Good data management allows effective measurement and quantification of the benefits of any given project. Data collection for the Council's carbon footprint follows the methodology used since 2011, allowing robust comparison of reduction across previous years actions, and future plans to follow. Data for energy and water usage is provided on a monthly basis through the Council's suppliers, with gas and electric data provided electronically. Data for waste collection is supplied on request from the Council's waste contractor and transport data is collated

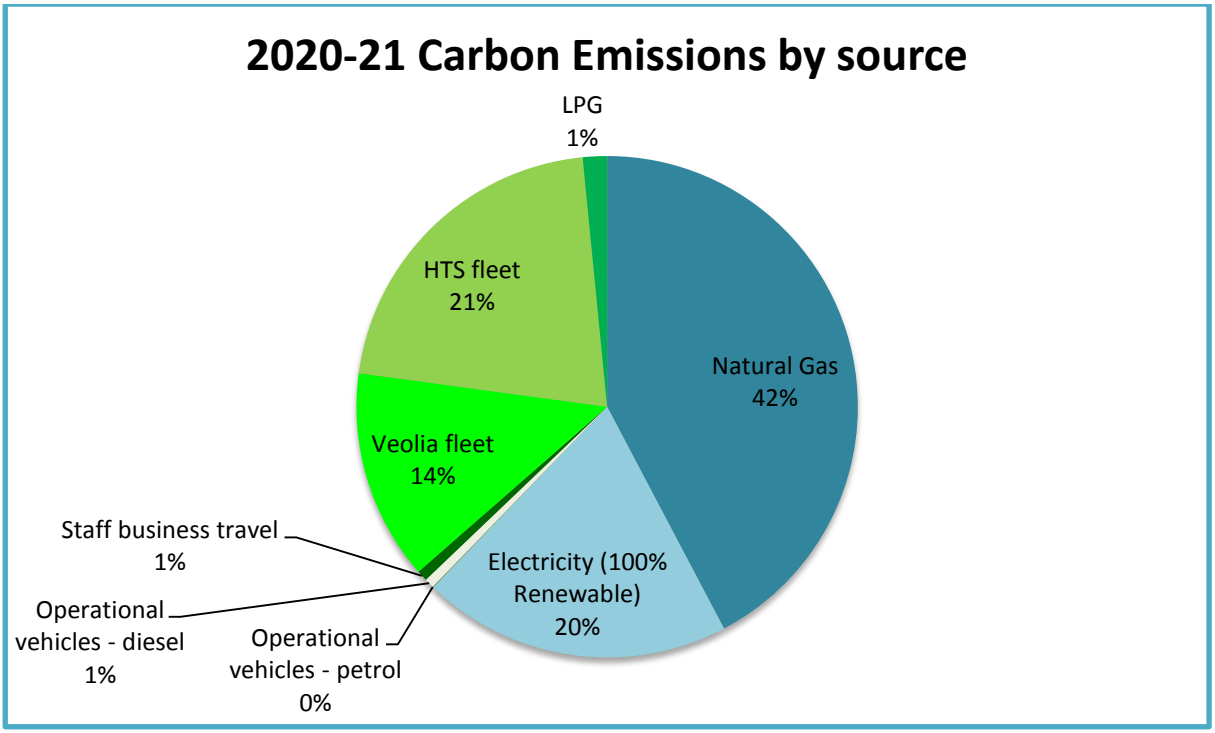
through the Human Resources service at the Council, HTS and our waste contract partners.

26. Through the work of the Staff Travel Group, Council employees are being encouraged to shift to sustainable modes of transport such as cycling and walking. However, this only forms a small element of the Council's transport related emissions. Achieving significant reductions in transport emissions will require cooperation from the Council's partners and contractors in how they procure and manage their fleet, including HTS Ltd. Every partner or contractor of the Council is encouraged to collate quarterly data on their own carbon emissions and set targets for reduction, thereby contributing to the overall Council target to reduce emissions.

27. A comparison of the Council's Co2e emissions for the past 10 years is shown below:



28. The residual carbon emissions following the previous two Carbon Management Plans can be seen below with gas and transport related emissions making up the majority.



29. 42% of emissions for 2020-21 (1689 tonnes) were from natural gas, most notably from gas powered boilers to heat operational buildings. The current gas boiler infrastructure for the majority of buildings is at/beyond end of life. Most notable examples include the Latton Bush Centre (South Boiler House), Mead Park Depot, Harlow Playhouse and Civic Centre. New modular condensing energy efficient boilers have already been installed at the Leah Manning Centre and Harlow Museum which are seeing some savings.

30. Detailed feasibility studies will be undertaken when boiler replacements are required to appraise the most suitable option on a site by site basis. There is no one size fits all solution for heat emission reduction and in the short term. Options appraisals have been carried out for replacements at Mead Park (2023/24) and the Playhouse (2022/23), which have highlighted barriers to the use of renewable heat sources for these premises. Further options appraisals will need to be conducted for the Civic Centre in the next one to two years with implementation by 2024/25 at the latest.

31. The barriers to the use of renewable heat sources currently include poor fabric insulation levels in roof, walls and thermal elements, sizing of properties for the power ratings of available technology and the nature of the heat distribution systems within these buildings. Installation of new gas appliances at these properties is currently likely to be the most cost effective option. This will still achieve significant savings on emissions due to the improved efficiency new installations will provide, but nonetheless tying the properties in to gas heating sources for a minimum 10-15 year period. As technology develops issues of building sizing will no longer need to be considered but investment in building fabric and more disruptive and costly changes to distribution systems within existing buildings will need to be built into the cost of changing heat sources to renewable options; therefore the timing of these changes needs to be carefully

considered against changing technologies to achieve best value for money when replacing heat generation sources. That said, the Council's commitment to zero emissions by 2040 will mean that no fossil fuelled boilers will be fitted into operational buildings after 2025/26.

32. 38% of emissions in the same period are caused by Council, HTS and Veolia fleet. Council fleet emissions, including staff travel, make up just 2% of these emissions, with HTS fleet making up 22%, and Veolia 14%. Vehicle technology for vans is now at a point that electric vehicles are more commercially available than ever before, though concerns remain about range anxiety and suitability for livery. However, some smaller vehicles (cars or small vans) should be considered for replacement to zero emissions in the short term as the technology has developed to a more suitable level. For larger vans and HGV's, a fleet management plan should be drafted by the Council/HTS to identify when and how the fleet can be replaced with low/zero emitting vehicles. Admittedly, there are some HGV's and tractors that may not be able to achieve zero emissions for some time and so carbon offsetting should be considered alongside fleet replacement. HTS will also commit to achieving Net Zero by 2040 and the Council will work with them to achieve this.

33. Veolia fleet emissions are particularly challenging to tackle as vehicle technology for low/zero emitting refuse trucks is in its early infancy. Until such time that technology is developed, these emissions will remain static. However, efficient route mapping for refuse collection rounds, Euro 6 classification for all vehicles and carbon offsetting will all be considered to help. Nevertheless, the Council will set an aspiration to delivering Net Zero from the waste service during the lifetime of the next contract from 2029.

34. Although the Council benefits from a 100% renewable energy contract for the majority of its electricity supplies, the electricity is still delivered through the National Grid, which is yet to be fully decarbonised. The energy used does not create emissions but its transportation to buildings through central infrastructure creates emissions in itself. Therefore 20% of emissions are still attributed to electricity usage. Further third party decarbonsation work on infrastructure will reduce these emissions, but the Council also has a role to play in increasing use of on-site renewable technologies that do not require use of the grid infrastructure for transmission of energy to an end use outlet.

ACTION PLAN

PROPERTY AND STAFF CONTRIBUTIONS

35. The work in the next five years in relation to the Council's property portfolio will focus on the continuation of the rollout of the LED lighting programme, developing the use of photovoltaic panels on Council buildings and the upgrades to heating boilers in Council buildings. The savings generated by upgrades to the Playhouse, Latton Bush and Mead Park buildings are included in this report, with further potential savings to be identified as options are developed for the Civic Centre heating system.

Action	Timescales and status	Performance measurement /monitoring	Level of impact
Installing photovoltaic panels on all public council buildings within the next two years.	2022 – work underway	No. kWh generated by panels on annual basis	Low 1 tonnes of CO2e saved per annum
Installing LED lighting in the Civic Centre, Latton Bush Centre and Leah Manning Centre	2022 – work underway	No. kWH avoided through use of LED fittings	Low 0.5 tonnes of CO2 saved per annum
Re-include 100% renewable energy as part of energy supply contracts renewal for electricity	2023	Certificate of origin for all renewable energy generation as part of Council contracts	High - maintains 374 tonnes per annum avoided
Work with HTS to identify carbon emission savings from operations within a five year period.	Summer 2022	Action Plan agreed	Medium - Aim to save 39 tonnes by 2026
Boiler upgrades at Mead Park Depot the Playhouse and Latton Bush Centre.	2026	No. kWh used/ avoided through use of low carbon fuel sources	High - 74 tonnes saved per annum

Action	Timescales and status	Level of impact
LED streetlights	2023/24	Low – 2 tonnes of CO2e saved per annum for HDC lighting (NB street lighting supply is not via renewable energy contract)

Environment and Transport

36. The current and future actions within the Environment and Transport work stream are as below – these actions are not currently fully quantified but as transport related emissions make up a large proportion of the residual emissions from Council operations it is vital to record actions taking place towards identifying methods for reducing these. In line with the 2040 target for zero emissions, all vehicles purchased by the Council for its own operations will be electric vehicles from 2023/24 onwards (saving an average 1 tonne CO2e per vehicle a year).

37. As the emissions are owned not only by the Council but also its partners actions to tackle transport emissions have not been approached in previous Carbon Management Plans. This plan marks the point at which the Council will tackle these emissions head on and some groundwork is required before actions can be quantified.

Action	Timescales and status	Performance measurement/monitoring	Level of impact
Installing electric vehicle charging points across all Council car parks within the next three years	2021/22 pending Cabinet approval	Avoidance of petrol/diesel mileage for HTS and staff business travel through use of electric vehicles	Indirect – will support Council, waste and HTS fleets move to electric vehicles
Setting up working group to develop plans for electric car charging points in residential areas	2021 pending Cabinet approval	Avoidance of petrol/diesel mileage for HTS and staff business travel through use of electric vehicles	None
Develop and implement a Staff Travel plan to increase use of sustainable transport	2022/23	Avoidance of petrol/diesel mileage for staff business travel through use of sustainable transport measures	Moderate –16 tonnes per annum
Complete Energy Savings Trust report for Harlow fleet	2021/22	Output report	None – monitoring report to identify impact