



Tunbridge Wells Borough Council

# Corporate Carbon Descent Plan

---

31 March 2021



# Document Information

Approved by Cabinet: 11 March 2021

Cabinet Minutes: [CAB115/20](#)

Author: Karin Grey, Sustainability Manager

Carbon Consultants: Steve Marks, Carbon Strategy Lead, LASER (LASER Energy is trading style of Commercial Services Kent Ltd)

# Foreword:

## Councillor Alan McDermott Leader of the Council

Our climate is changing, and we are facing harmful impacts on our environment, natural habitats and lives in general. In July 2019 Tunbridge Wells Borough Council declared a Climate Emergency and set a commitment to become carbon neutral by 2030. Despite the immediate challenge presented by the COVID-19 pandemic, this ambition is still very much a priority for the Council.

This Descent Plan is an important first step towards meeting our 2030 carbon neutral target. It tells us where we are now and sets out different ways of achieving our long-term objective. We can use this to steer future policy over the coming years. (March 2021)

## William Benson Chief Executive

With the declaration of a climate emergency, we recognise the crucial role that local authorities can play in helping to reduce both the causes and impacts of climate change. It provides us with the opportunity to develop effective pathways towards reducing our emissions and will help to reduce the impact on the climate at both the local and national level.

The Council is keen to demonstrate leadership by rapidly reducing its own carbon footprint, building on the emissions reductions that we have already achieved. This will require an overarching commitment by us all to prioritise action to reduce our energy consumption, reduce waste and recognise that by working with each other we can reach our ambitious but achievable target. It will also require us to act in our capacity as a community leader – encouraging others to do the same. (March 2021)

## Coronavirus Pandemic

When the climate emergency was declared in July 2019, the scale of the challenge was recognised alongside the importance of public engagement to ensure that action was taken in every part of society.

With the inception of the Climate Emergency Advisory Panel, (CEAP) a cross-party member working group supported by officers; understanding the Council's own carbon emission and developing a detailed robust and viable plan was agreed on as a key priority.

Work started just as the pandemic hit and despite the significant impacts of Covid-19 the Council continued to progress this task, although the work did experience a delay of 2-3 months.

Whilst the pandemic has had complex effects on emissions in general, our own carbon audit focused on a complete data set from 2018/19 pre-pandemic. Future audits to assess if we are on track with our ambition to be carbon neutral by 2030, will identify any impacts due to Covid-19. However, the sudden falls in emissions during the

pandemic are extremely unlikely to impact on global carbon dioxide, with levels already rising to a new peak (see [Met Office news article](#)).

# Introduction

We need to act now if we are to avoid catastrophic climate change. In July 2019 Tunbridge Wells Borough Council, declared a Climate Emergency (FC29/19 – see [Full Council minutes](#)) and set an ambition to make its own operations, services and buildings carbon neutral by 2030.

Following the declaration of a Climate Emergency, the Council established a cross-party Climate Emergency Advisory Panel (CEAP) to conduct an audit of the Council's current carbon footprint and develop a pathway to reach net zero by 2030.

As part of this process, the Council engaged an external consultant (LASER) to conduct a detailed assessment of current CO<sub>2</sub> emissions across the Council's services and estate. This enables the Council to know its total footprint and identify the buildings or services generating the highest CO<sub>2</sub> emissions so they can be prioritised first for future action.

LASER was also able to use their expertise in this area to model different options for reaching carbon neutrality along with likely costs of each. This has been an iterative process involving input from councillors of all political parties and discussions with Council staff about feasibility and budgetary constraints.

The full report from Laser is included in Appendix A.

This Corporate Carbon Descent Plan brings together the results of the carbon audit and the extensive modelling work conducted by LASER and the CEAP panel. It includes some obvious measures (such as LED lighting and solar panels) but also sets out less obvious potential measures such as Power Purchase Agreements and investment in an out-of-borough solar farm. Importantly it includes an action plan for 2021-22 and this will be reviewed annually.

The Descent Plan, will inform and influence the Council's corporate strategies, plans and policies, including the Council's new 'Five Year Plan'.

Whilst this report and plan is forward looking, the Council had already taken action to reduce its carbon emissions as part of the Carbon Management Plan 2010 – 2015.

# What constitutes the Council's operations?

Over the next 10 years to achieve our aim of a carbon neutral target the plan recognises that the Council will need to consider:

Council buildings: energy to heat and power our buildings is a major source of emissions. Our aim is to reduce energy usage in our buildings including by exploring rationalisation of our estate, increasing insulation where possible, swapping to more efficient sources of heating and lighting, encouraging behaviour change and looking for opportunities to add renewable sources of energy such as solar PV.

Corporate Energy: This refers to the energy purchased by the Council for its operations. We will reduce energy usage and move to using 'clean' energy to meet our remaining energy needs.

## Governance and Procurement:

We will expect all our service providers and suppliers to work with us to meet our ambition to be carbon neutral by 2030. We will engage with existing contractors and build-in requirements to support our ambitions in our various contracts for service including exploring the potential of assessing potential suppliers carbon footprints during procurement.

Council decision reports: All decision reports will now consider in greater detail the likely impacts of our decision on the Council's carbon emissions and on our aspiration to achieve net carbon neutrality by 2030, or as close to that date as possible. The intention is to mitigate negative effects and identify projects which will have positive effects.

Transport: Vehicles are also a source of emissions. We will continue to work towards all Council officers walking and cycling and using ultra low-emission vehicles when possible. This includes our owned vehicles which we will swap for electric vehicles when renewing and encouraging our staff to move to low emission vehicles as and when appropriate.

# Carbon Footprint

The carbon footprint provides a record of TWBC greenhouse gas emissions in the 12-month period covering April 2018 to March 2019, by assessing the 2018/19 data sets held by the authority.

**The Council's total carbon emissions for 2018/19 were (3,473.4 tonnes of CO<sub>2</sub> e) equivalent (tCO<sub>2</sub>e)**

This represents a 43 per cent reduction from 2013/14 when the last assessment reported total emissions of 6,046 tCO<sub>2</sub>e.

In this period the Council took steps to improve energy efficiency and the use of renewable energy including installing solar PV on the tennis centre roof of the St John's sports centre, lighting changes, and other building improvements. The reduction in carbon emissions associated with national electricity generation has made a significant contribution and there will be some differences in the reporting between the two audits.

The Council's carbon footprint was calculated and broken down in a variety of ways to quantify and analyse the different types of emissions sources.

## Scope 1, 2 and 3:

A carbon footprint is divided into three different categories (scopes) of emissions:

Scope 1 – Direct GHG (Greenhouse Gas) Emissions, where the emission occurs directly from sources controlled or operated by the Council, for example the gases emitted from a boiler flue as a result of burning natural gas for heating.

Scope 2 – Electricity - indirect GHG Emissions, where the consumption of a utility on site has a direct bearing on the emissions offsite. This predominantly relates to electrical consumption but can also include district heating and cooling.

Scope 3 – Other indirect GHG Emissions, where emissions are a consequence of the activities of the Council but occur from sources not owned or controlled by them. Scope 3 is a very wide category and includes all emissions sources not included in the other two scopes, such as the leisure centre operations, the transport emissions from the vehicles used in recycling and waste collection and ground maintenance. Scope 3 also includes emissions associated with disposal of waste generated by our own estate, water consumption, grey fleet (employees using their own vehicles on Council business).

Greenhouse gas emissions are reported in units of carbon dioxide equivalents (CO<sub>2</sub>e). This allows the impact of each of the seven main greenhouse gasses to be expressed in terms of the amount of CO<sub>2</sub> that would create the same amount of warming,

allowing easy comparison of the impact of different emission types. Throughout this report, all greenhouse gas emissions are given in terms of carbon dioxide equivalent.

The breakdown in Chart 3.1 below shows that Scope 3 emissions dominate the Council's carbon footprint, comprising 60 per cent of total emissions.

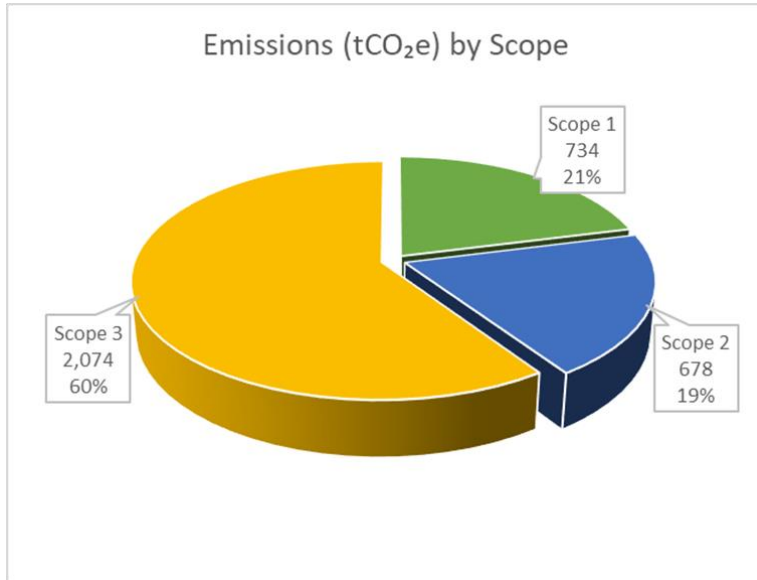


Chart 3.1: TWBC emissions by Scope

Further analysis was carried out (see charts 3.2 and 3.3 below) to identify the emissions broken down by sectors including buildings, third party contractors, and transport.

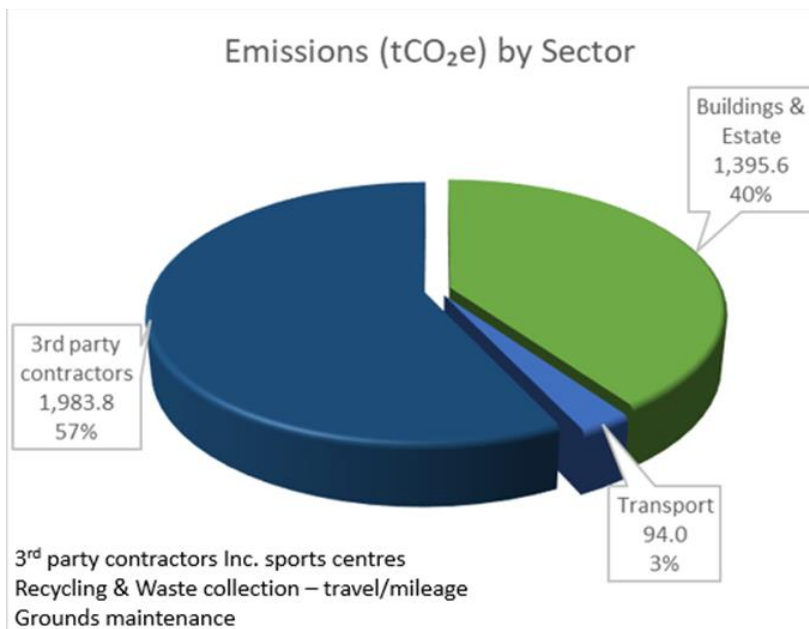
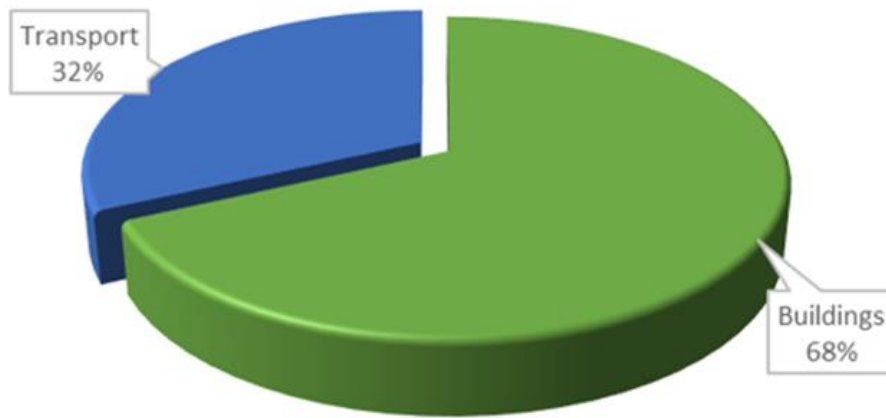


Chart 3.2: Emission by Sectors

### Emissions (tCO<sub>2</sub>e) by Sector - Combined



Emissions Source	tCO <sub>2</sub> e
Buildings	2,367.3
Transport	1,106.1 Inc. fuel use on contracts

Chart 3.3: Emissions by Sectors combined (inc. energy emissions from service provision e.g., leisure centres)

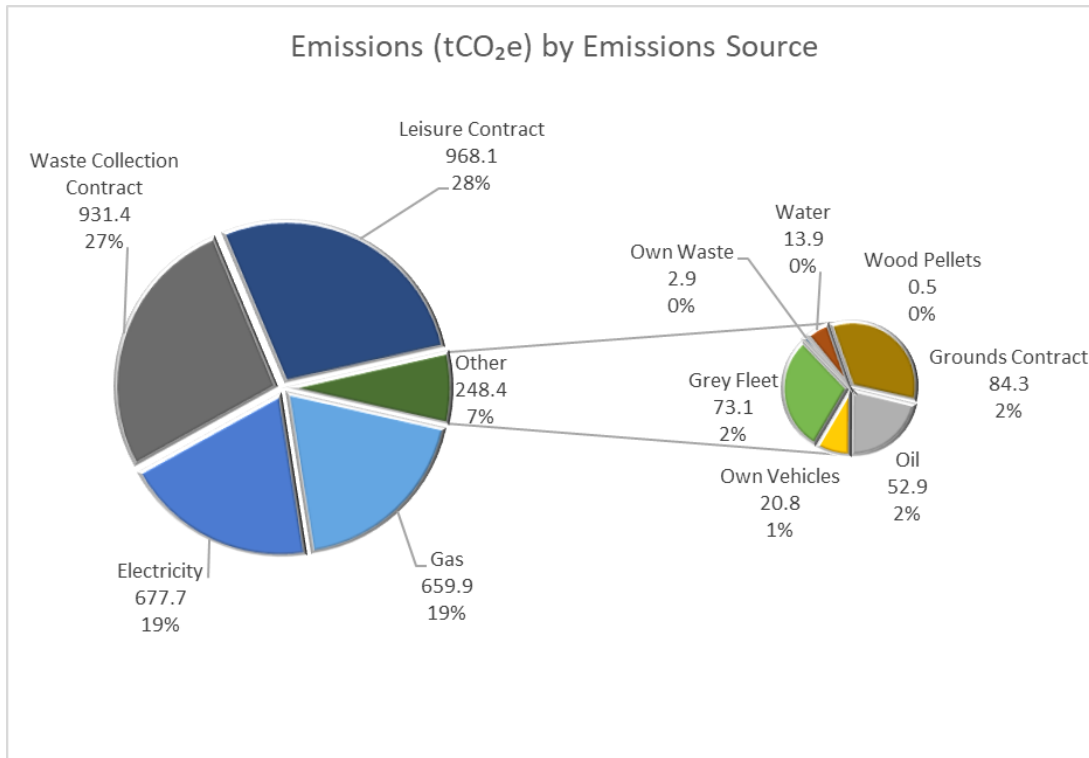


Chart 3.4: TWBC tCO<sub>2</sub>e emissions by source 2018/19 data sets.



## Key findings for scopes 1, 2 and 3:

The total baseline emissions for TWBC are around 3,500 tonnes (3473.4 tCO<sub>2</sub>e) per year.

Most emissions are scope 3 making up 60 per cent of the total and most notable through the Council's procured goods and services, with the other scopes comprising approximately 20 per cent each, being natural gas (Scope 1) and electricity (Scope 2). Such emissions patterns are typical for a council, as several services are outsourced, including the leisure and waste collection contracts.

Most transport emissions shown in Chart 3.3 & 3.4 above are associated with the household recycling and waste collection service. The 'waste management' emissions only consider the operation of the collection vehicles and not the treatment and storage of the waste or the environmental benefits of recycling.

Further analysis of the data as detailed in chart 3.4 shows that the outsourced services of leisure, waste collection and grounds maintenance create the highest emissions accounting for 57 per cent of the 60 per cent total. The waste collection and leisure contracts make up over half of total emissions, each accounting for just over a quarter.

Other emissions, as shown in chart 3.4 above, contribute only 7 per cent to the total footprint. This is made up mainly of the ground's maintenance contract, grey fleet, oil use and, to a lesser extent, owned vehicles.

The Council's own vehicle fleet in conjunction with business mileage for the grey fleet, (private owned vehicles used on council business), account for 3 per cent of the overall emissions. Whilst these are not the biggest emissions the Council still has reasonable influence over these through the development of policy on business travel.

# Building emissions:

In terms of the Council's owned buildings/assets the top ten emitters are shown in chart 3.5 below. It should be noted that the Ameillia Scott was not part of the Council's property portfolio at the time of the audit and therefore was not included in this round of assessments.

The top 10 buildings account for over 60 per cent of total emissions (this includes sports centres which were included under the leisure contract in chart 3.3. above. A breakdown of these buildings is shown in charts 3.5 and 3.6 below.

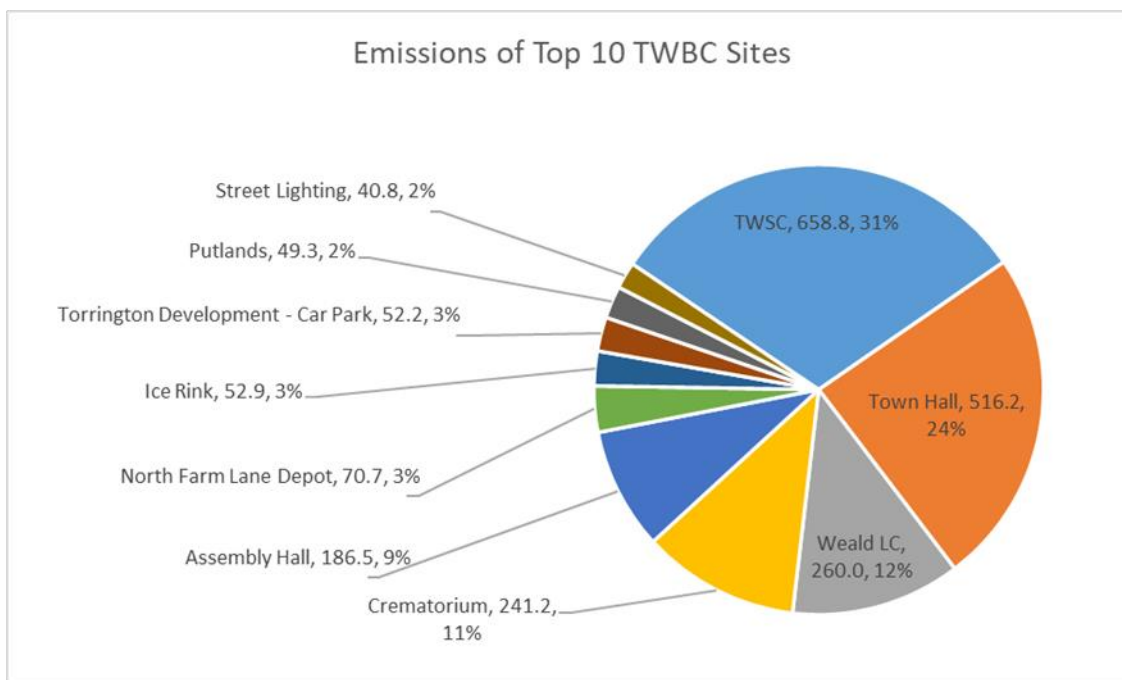


Chart 3.5: Emissions of the top 10 TWBC sites (N.B. The percentages in this chart relate to % of the total emissions of the top 10 buildings)

The building emissions show that the top two sites (Tunbridge Wells Sports Centre (TWSC) and Town Hall) account for approximately 50 per cent of total building emissions. The top five buildings (TWSC, Town Hall, Weald LC, Crematorium and Assembly Hall) account for over 75 per cent of total building emissions and 54 per cent of the Council's total carbon footprint.

### TWBC Buildings Emissions by Site - Ranked Largest to Smallest

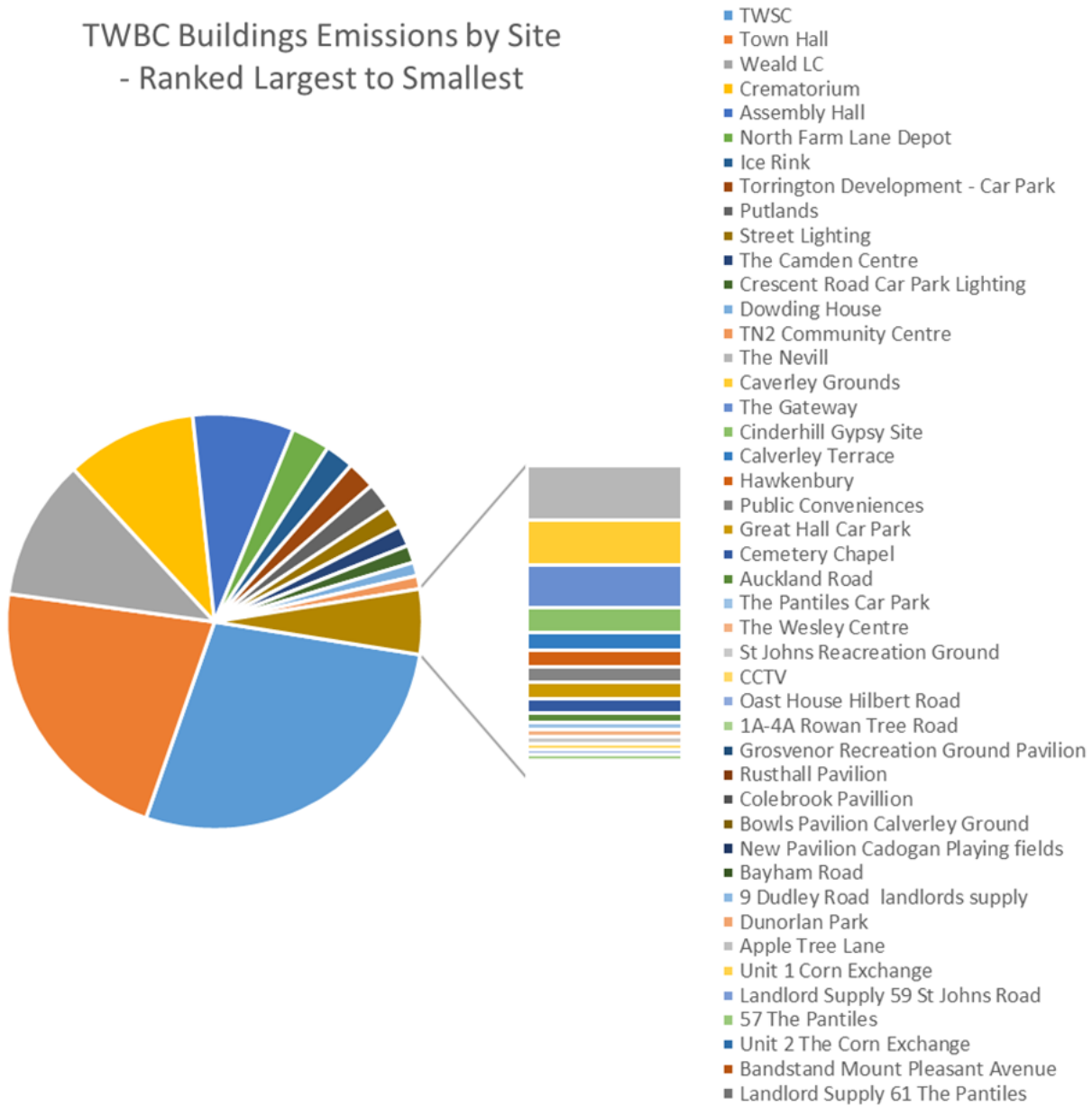


Chart 3.6: Emissions from council owned/controlled buildings and assets.

# Forecast

A long-term forecast of the Council's emissions up to 2030 and beyond to 2050 was carried out to understand the emissions levels if no action was taken to reduce them. i.e. if business as usual (BAU) was maintained.

Chart 4.1 below shows that total emissions at the baseline equate to 3,500 tonnes (tCO<sub>2</sub>e). The foremost categories below are TWBC gas (blue), TWBC electricity (dark grey), waste collection diesel (orange), leisure gas (peach) and leisure electricity (light grey).

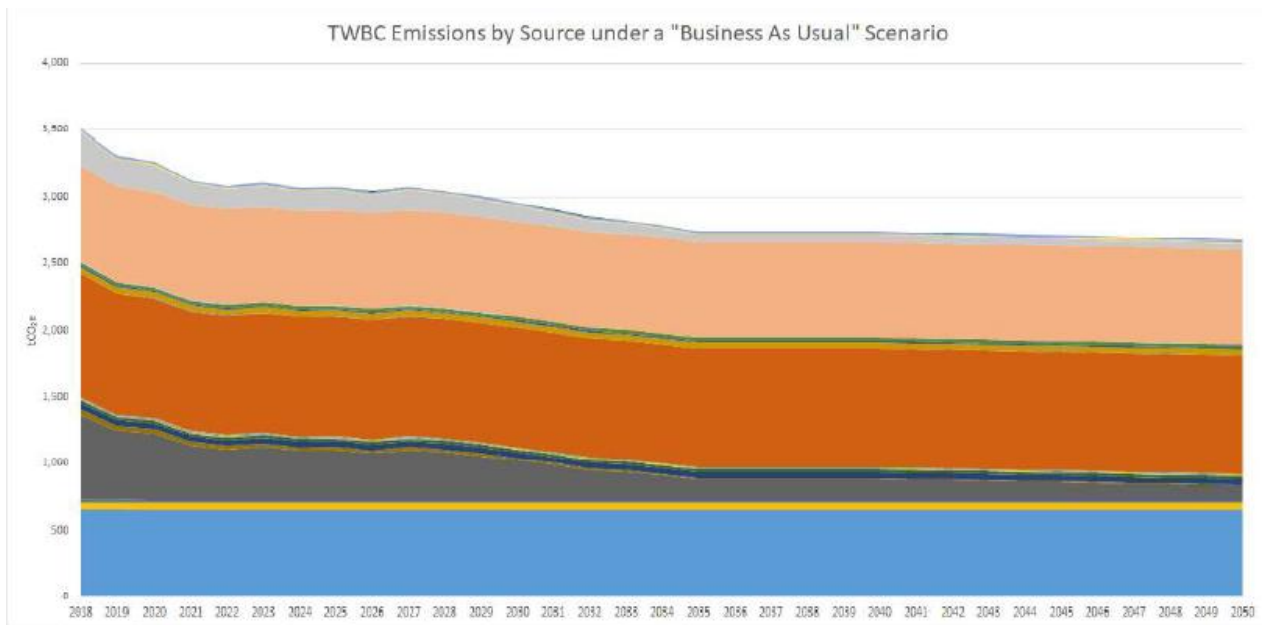


Chart 4.1 – TWBC emissions to 2050 under a “BAU” Scenario

In the medium- and longer-term emissions associated with this level of use would reduce to just under 3,000 tonnes (tCO<sub>2</sub>e) in 2030 and 2,675 tonnes (tCO<sub>2</sub>e) in 2050. The forecast clearly demonstrates maintaining BAU is not an option.

The reductions shown are largely due to forecasts around electricity generation becoming cleaner whereas the emissions associated with gas remaining largely static throughout and make up an increasing proportion of the total. These figures are based on government forecasts so, while they are long term forecasts and liable to change, they are as realistic estimates as possible now.

# Carbon Reduction Pathway

A recommended carbon reduction pathway to 2030 has been modelled by LASER. More detailed information on the carbon reduction pathway analysis can be found in the LASER report as attached in appendix A.

The carbon reduction pathway considered the various reduction opportunities available to the Council including, energy efficiency, renewable energy generation, procurement of green energy and off-setting.

To reach its carbon neutral ambition by 2030 as shown in chart 5.1 below, the Council needs to reduce its' emission, against business as usual (BAU), by 25 per cent by 2022, to 49 per cent by 2025 and 74 per cent by 2030.

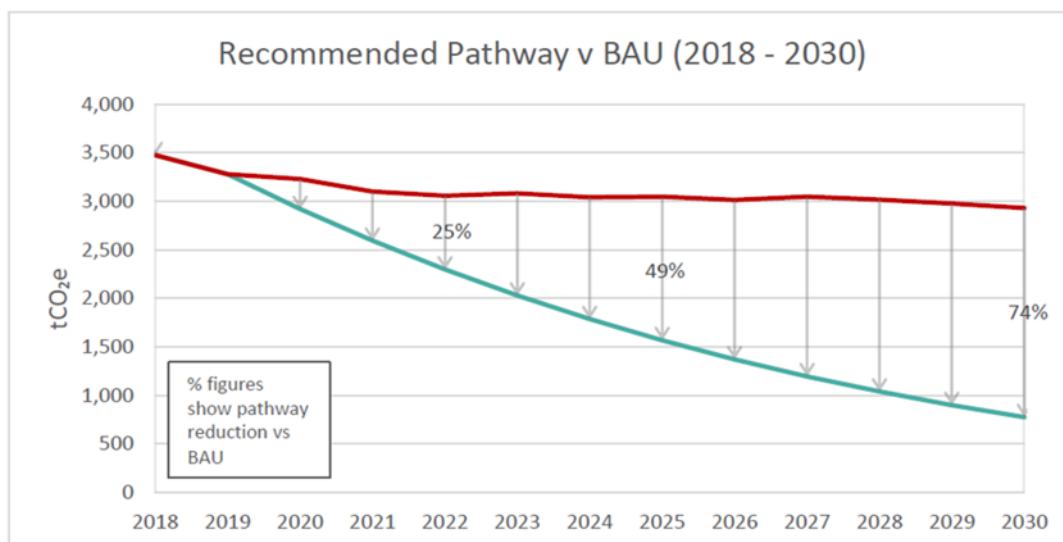


Chart 5.1: Recommended reduction pathway for carbon to 2030

The outlined projects, detailed below in section 7, do not at this stage enable the Council to reach 'neutral' emission by 2030 – there is a gap to target of 776 tCO<sub>2</sub>e. Therefore, remaining carbon reduction not achieved by 2030 and which keeps emissions above net zero would need to be 'offset' i.e., 'gap to target'. Carbon offsetting enables the Council to invest in environmental projects to balance out its own carbon footprint and ambition of being carbon neutral by 2030. Only emissions that cannot be abated by other means should be offset.

Keeping on track and reducing our emissions as much as possible by 2030 will ensure we are restricting our contribution to damaging climate change. Early action will be critical to avoid falling behind targets.

The importance of taking early action and meeting our ambition of being carbon neutral by 2030 is shown in chart 5.2 below. If we did nothing and maintained 'BAU' the Council would use its entire carbon allowance to avoid dangerous climate change within 7 years from 2020.

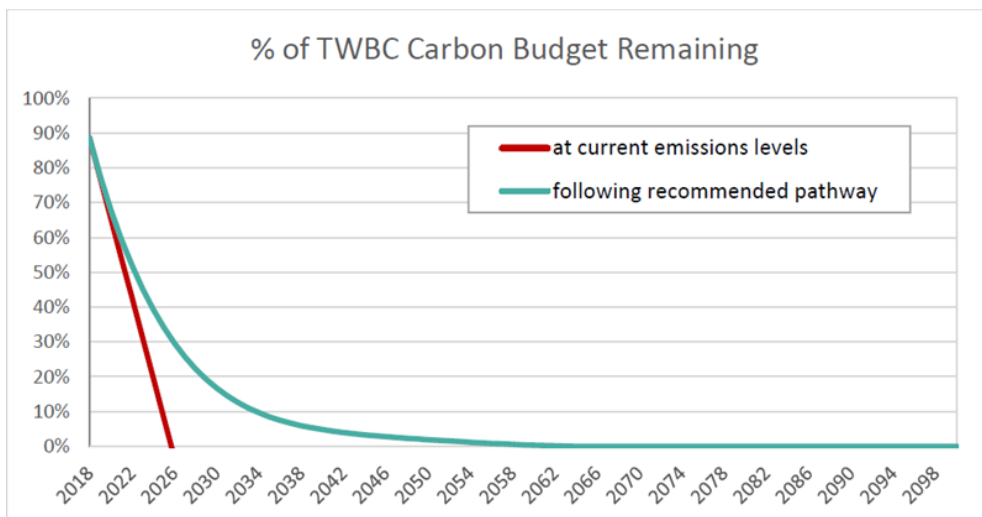


Chart 9: BAU Emissions Against Carbon Allowance (see [Tyndall Centre website](#)) showing the need to deliver a rapid and very significant drop in emissions.

## Option appraisal:

Assessing various carbon reduction opportunities including best fit for TWBC enables the Council to map a path to continual improvement in carbon and energy management, driving down energy and fuel spend and their associated carbon dioxide emissions.

Option appraisal workshops held with senior staff and CEAP. CEAP members sought feedback from their respective Groups. Feedback highlighted the following priorities and issues to be factored into strategic action planning: -

- Investment in owned large scale renewable generation, either in or out of borough, is unlikely due to importance of scale of investment and low rating of political acceptability. With investment in ‘in-borough’ assets marginally more appealing to members than investment in out-of-borough assets. Though small-scale community energy generation i.e., roof-top solar would be an option, but this is likely to feature more prominently in the Borough wide carbon reduction plan and as part of ‘offsetting’.
- The need for zero carbon electricity supplies, makes Power Purchase Agreements (PPAs) an attractive option for TWBC. PPAs are essentially contractual agreements between ‘offtakers’ (consumers) and suppliers or generators where an agreement is made to buy and sell an amount of energy generated from a renewable asset for a set term, usually between 10 and 20 years. These agreements allow generators to invest in assets with certainty and guarantees long term green energy supply to the consumer. However, initially green energy will be purchased, with a rapid move towards a ‘green basket’ of options prior to PPA’s. Further details on PPA’s and green basket options can be found in the detailed LASER report in appendix A.

- Clarity over the long-term future of buildings when bringing forward specific carbon reduction opportunities (CROs), such as insulation, heat pumps, LED's etc to be planned and delivered.
- Heating strategy will need to be a focus but may be developed more clearly as government policy evolves. In terms of technology though, heating stoves suitable for use with a variety of fuels including hydrogen are already available for purchase.
- LED and rooftop solar are likely to figure in early actions.
- Reduction in emissions from third party contracts will be essential and is of critical importance to CEAP, with opportunities to review Grounds Maintenance and Leisure in the nearer term but with Waste Collection and Street Cleaning a longer-term contract.

As a Council we have started to purchase 'green' electricity (see [article on "Which" website](#) and [advice on Energy Saving Trust website](#)). Though this is only a very small first step, as it does not necessarily mean the power is supplied solely from renewable energy sources, cannot be traced and will still be a mix with fossil fuels. Currently, there are no defined regulations or conventions around green energy. However, the importance of purchasing true renewable energy, with traceability and additionality, (investment resulting in the construction of a new generation asset such as a solar array) remains critical to reaching net zero.

## Net Zero Carbon Modelling & Outputs

To develop a programme of activity for carbon management LASER were tasked to model several options and scenarios aimed at achieving carbon neutrality by 2030. The modelling is designed to aid decision making and is based on current factors and state of the market technologies, with the BAU forecast used as a baseline.

The key impacts of the various scenarios are shown by the net emissions and net cashflow which clearly demonstrate the cumulative impact of the selected option on the Council's emissions. With each model providing an indication of the differing strategies to achieve net zero by 2030 and of the high level of financial investment required and the amount of carbon offsetting, ('gap to target'), from 2030.

The following 6 scenarios were assessed: -

1. Central Scenario includes 5% estate rationalisation, 60% Air Source Heat Pumps (ASHPs) and 40% LED lighting. The central scenario demonstrates the impact of a set of agreed actions and assumptions (i.e., such as an assumed estate rationalisation level of 5% by 2030) against the BAU baseline.
2. No estate rationalisation includes 60% Heat Pumps, and 40% LED lighting.
3. Increased coverage of LED & ASHPs includes 80% ASHPs and 60% LED lighting and 5% estate rationalisation.

4. Electricity procurement through PPA and with increased coverage of LED & ASHPs as for scenario 3.
5. 40% estate rationalisation includes 60% Air Source Heat Pumps (ASHPs) and 40% LED lighting.
6. Investment in Solar Park (with base as central scenario).

All models included the various following assumptions: -

- Insulation of buildings for 20% reduction in heat loss.
- 50% - 70% reduction in own fleet and grey fleet mileage.
- 10% reduction in streetlighting - switch offs or further trimming and dimming to reduce energy use by 2030.
- Conversion of ice rink generator fuel use to electricity in 2025.
- In terms of the outsourced services, it is assumed contractors abate all emissions costing <£100/tonne and offset all others to a standard set by TWBC.
- Leisure contract emissions from the leisure buildings are reflected in the Council's own estates building emissions.
- The initial term of the waste collection and street cleaning contract runs to 2027. Opportunities to achieve a step change in emissions from current levels to zero carbon will be considered as part of any contract extension or renewal. This is reflected in emissions from 2029 onwards.
- Grounds Maintenance contract were assumed to abate in a linear fashion from current levels to net zero over the course of the next contract. To be built into the service specifications at service renewal in 2021/22, with net zero by 2026.

Note: -

Estate rationalisations percentages used are for examples/demonstration purposes only, to enable an understanding of the impact of a reduction in the estate on the resultant carbon emissions to be gained.

Due to the nature of Power Purchase Agreements PPAs they tend to be long-term, large volume contracts which can preclude some consumers from entering the market. To provide a solution, LASER has created a model where multiple public sector bodies are aggregated to increase buying power and are calling this the Public Energy Partnership Power Purchase Agreement (PEPPPA). It is anticipated that other similar schemes may also in due course be available on the market for procurement.

## Model outputs

The modelling gives a view of potential and possibilities but is not informed by specifics of costed projects. The models depict the various ways to achieve the target set by the Council. They provide context for the challenges faced by the Council and provide visibility of the significance of the contribution of each emissions source over time.

Analysis of financial impacts is based on energy costs only.



## Off-setting

In most scenarios, there is reliance on offsetting emissions to achieve targets. This comes with its own risks and importantly no financial returns on any investment.

CEAP recognises that some offsetting will be required, but this will be as a last resort when all effort has been made to reduce carbon emissions.

To adhere to the convention of carbon reduction, only emissions that cannot be abated by other means should be offset. Significant offsetting leaves the Council exposed to the market to meet their target. The carbon offsetting costs (£/tonne CO<sub>2</sub>e) used in this analysis are based on government forecast figures in a mid-range scenario.

Carbon offsetting is an evolving market and as such more difficult to predict. The cost of carbon offsetting could be substantially higher by 2030 especially as demand is likely to drastically increase at that point and over the intervening period. Care will also need to be taken to avoid schemes that offer little overall benefit or make fraudulent claims. It will be more appropriate to assess local opportunities to invest in activity which extracts CO<sub>2</sub> from the atmosphere. E.g., local bio-diversity schemes (see Green Alliance report [“New routes to decarbonise land use”](#) and the government’s [Biodiversity Strategy 2020](#)).

A detailed analysis of the various modelled scenarios can be found in the full LASER report in appendix A.

## Central Scenario

As stated above the charts of net emissions and net cashflow clearly demonstrate the cumulative impact of the selected option on the Council’s emissions.

For example, in terms of the central scenario shown in chart 7.2.1 below it shows how the different emissions sources, (gas, electricity etc.) fluctuate over the selected time and how the net emissions, depicted by the green line, compare to the BAU baseline shown as shown in the red line.

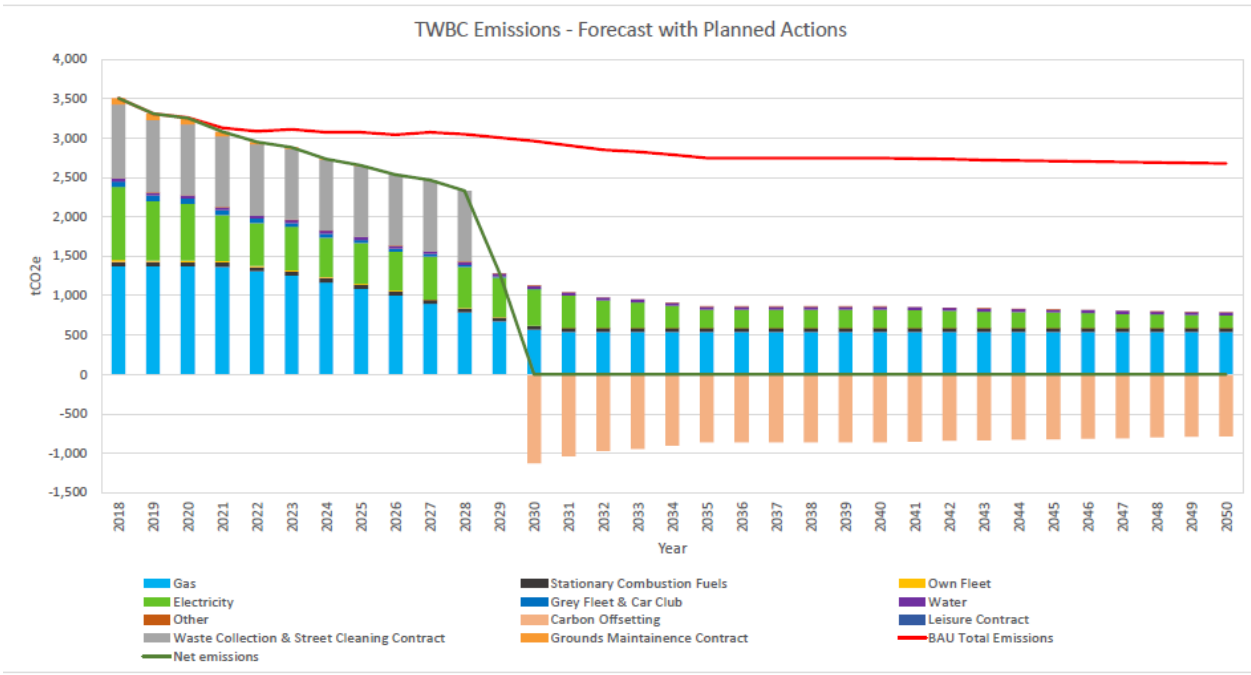


Chart 7.2.1: TWBC emissions under central scenario

In this central scenario significant quantities of gas and grid electricity (light blue and light green bars) consumption remain at 2030 (the target date) and so there is a heavy reliance on offsetting (peach coloured bar below the x axis) to achieve the net zero target set by the Council.

This is also reflected in the cashflow with offsetting becoming an increasing cost over time for TWBC to remain net zero emitters.

Chart 7.2.2 shows the cashflow of the projects with those generating a positive cashflow shown above the x-axis and those negative ones below. The net position is shown by the dark green line.

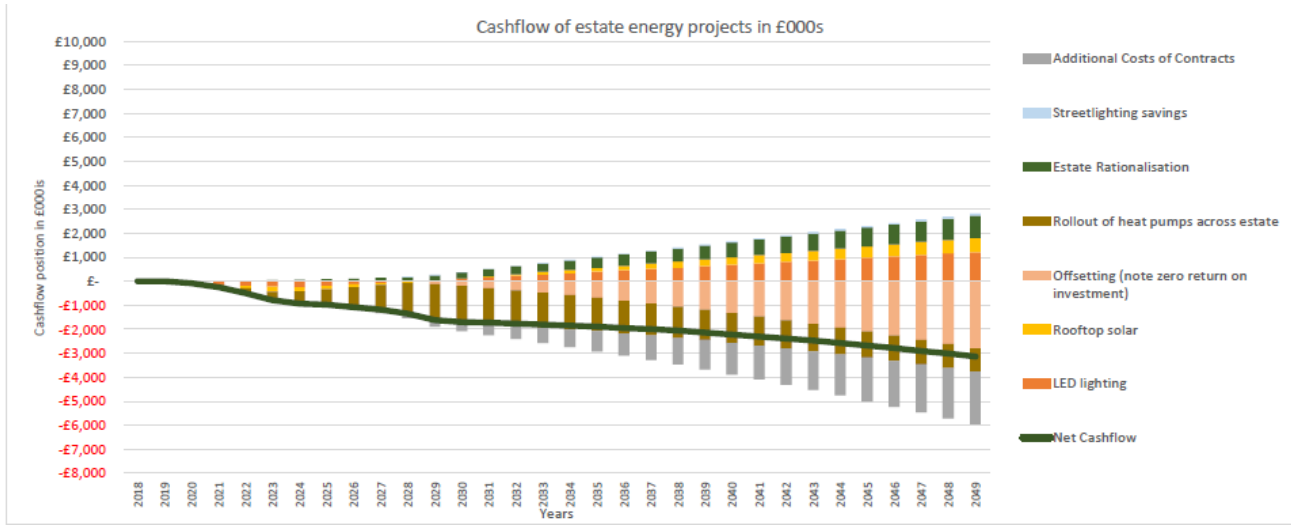


Chart 7.2.2: TWBC cashflow under central scenario

# Comparison across all six models

Comparisons have been made across all scenarios and the total net emissions for each scenario have been plotted against each other on the chart below.

Detailed outputs from each of the six scenarios are contained in the main LASER report as found in appendix A.

## Net emissions

Chart 7.3.1 shows the emission reduction achieved by 2029, with all remaining emissions from 2030 offset to reach the target set in line with carbon neutral.

There is a heavy reliance on offsetting in many scenarios and as detailed above which is not advantageous from an environmental perspective or from a risk perspective.

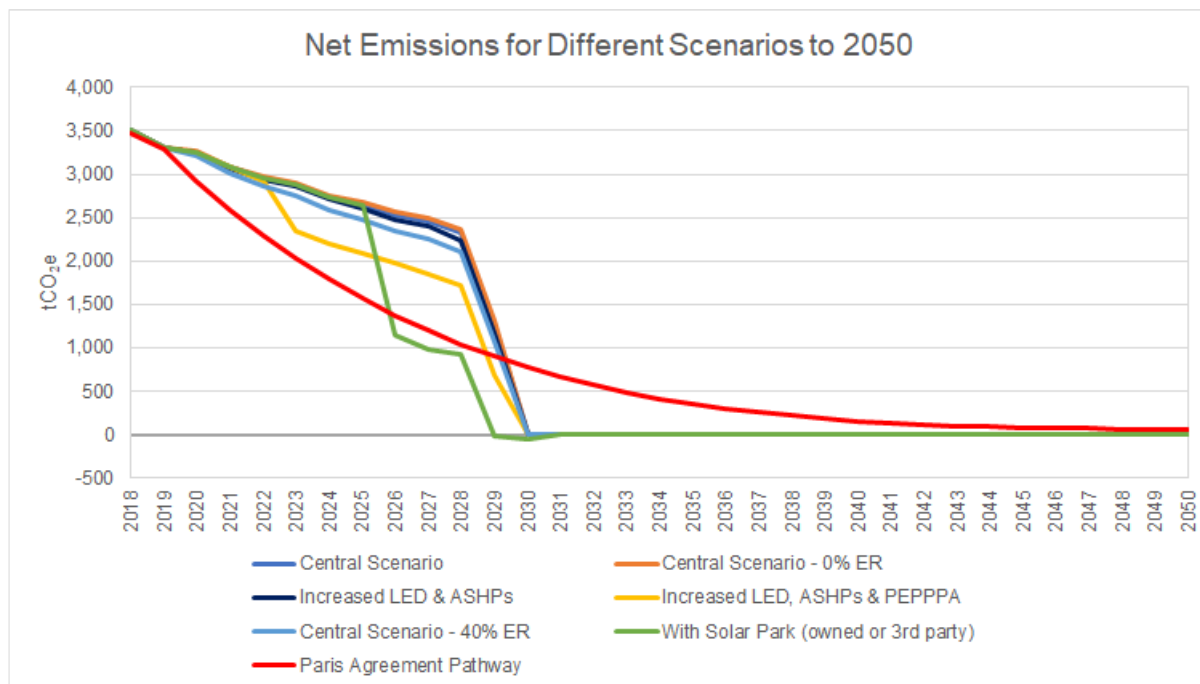


Chart 7.3.1 – TWBC emissions under various scenarios to 2029 and up to 2050

Only the scenario with investment in a solar park (green line) reaches net zero without offsetting. In effect this is to be expected as the solar park creates a positive carbon impact, counteracting those emissions that have not yet abated. The yellow line incorporating PPA's also generates more significant early impact from the electricity procurement strategy.

# Net cashflow

Chart 7.3.2 below shows the net cashflow, (based on energy costs only), of the various scenarios.

The most financially attractive scenario is the 40 per cent estate rationalisation scenario due to the ongoing savings in energy costs and the Council would break even by 2029.

It is also worth noting that the scenario (yellow line) with the increased LED and ASHP role out and investment in PEPPPA generates more significant early impact.

As detailed the models only take account of changes in energy cost and not costs associated with any other issues that would need to be resolved.

The solar park investment scenario also breaks even before 2050 where the returns maybe more than in other scenarios. However, it does require significant upfront investment, (approx. £8M), which CEAP considered was not a potential realistic opportunity for the Council.

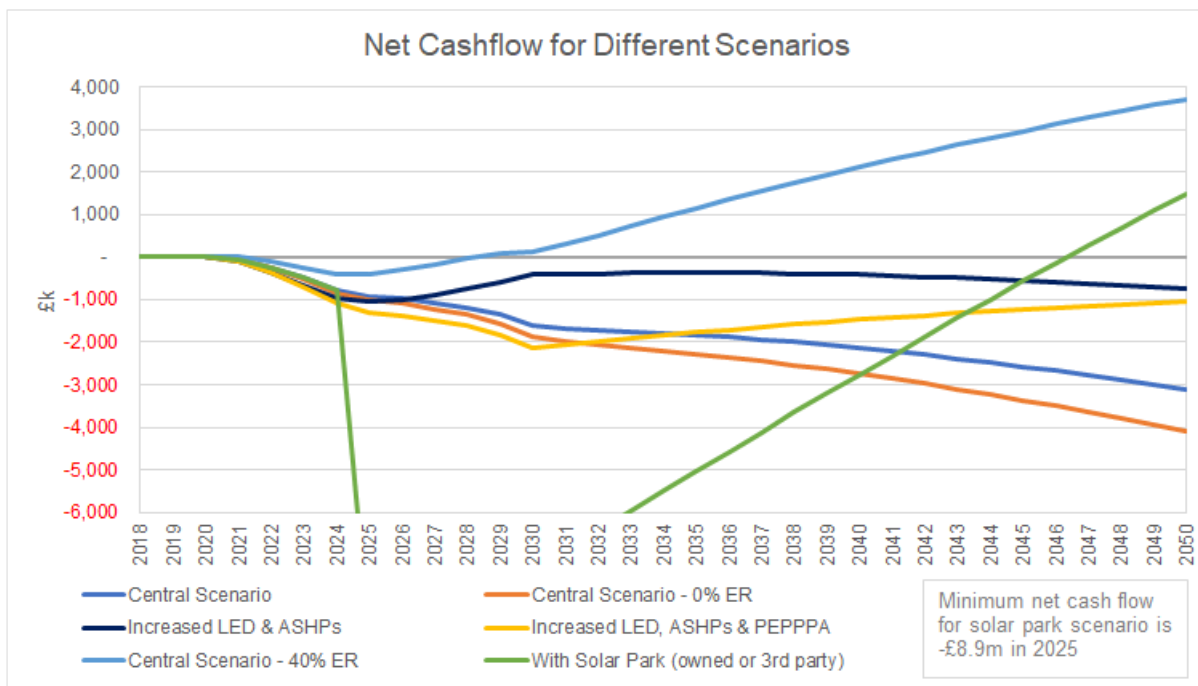


Chart 7.3.2 – TWBC net cashflow under various scenarios

The general downward curve from 2030 onwards is due to the slowly rising forecast cost of offsetting. The scenario with PPAs (yellow line) shows some positive trend but this diminishes over time and the remaining three scenarios all show a downward trend.

Overall, options with biggest impact include reducing the estate\*, requiring waste and leisure providers to operate at zero carbon and committing to enhanced levels of

energy savings in buildings combined with investment in large scale renewables or green electricity procurement.

\*estate rationalisation has a very narrow focus on energy only and not on the Council's requirements or impacts in general.

## Next Stage:

The modelling undertaken by LASER suggests that the Council can achieve its ambition of being carbon neutral by 2030, but this does require substantial action to be taken quickly. It also recognises that a certain amount of offsetting, whilst this is not its first choice, will be required from 2030.

By carrying out a carbon audit the Council has been able to identify the scale of its emissions and start the process of identifying the further actions needed to continue the reduction of its carbon emissions.

It is crucial that the Council has robust organisational procedures in place to maintain the focus on achieving carbon neutrality. CEAP recommends an annual update on actions taken and an appraisal of the Council's carbon footprint. A more detailed analysis of progress should be undertaken in 2023, 2026 and 2028.

CEAP recognises that the current coronavirus pandemic has impacted everybody both locally and across the entire globe and changed it permanently. It has both exacted a human toll and transformed the way we live, work, learn, access services and much more.

It has also reminded us how the biggest crises, whether medical or environmental, demand an ambitious response. It has accelerated efforts to transition to a just and sustainable economy with the net-zero transition offering opportunities for organisations that are proactive in the green agenda. Local authorities that have a well-articulated long-term strategy to address the energy transition are in the forefront of supporting these changes.

CEAP recognises how challenging it will be for the Council to reach carbon neutral. It therefore recommends targeting actions, delivered by all departments and services, through this Corporate Carbon Descent Plan.

Actions and projects proposed are expected to evolve and change as detailed feasibility studies are undertaken and new reduction opportunities identified.

It is likely that opportunities for further emissions reductions will come to light in due course through the introduction of new technologies, reductions in costs and changes to government policies.

# Budgetary requirements:

The LASER models provide an indicative high level financial analysis of the approaches to enable the Council to reach its target of carbon neutral by 2030, as set out in table 1 below. The analysis does not include the costs of Estate Rationalisation. Funding source(s) will need to be identified as part of the development of actions.

<b>Scenarios modelled:</b>	<b>Investment requirement (£million)</b>	<b>Carbon offsetting required (Tonnes CO<sub>2</sub>e)</b>
Central Scenario – 5% Estate Rationalisation (ER)	3.13	1,128
Central Scenario - 0% ER	4.10	1,158
Central Scenario - 40% ER	0.40	920
Increased LED (60%) & ASHP's (80%) & 5% ER	2.14	855
Increased LED, ASHPs & PEPPPA (5% ER)	2.14	498
With Solar Park (owned or 3rd party)	8.93	0

Table 1: Initial modelled high level financial assessment.