



Tonbridge & Malling BC

Carbon Reduction Model Output

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Overview

Modelling has been carried out by LASER to assess and review TMBC’s carbon emissions. Using the business as usual (BAU) forecast as a baseline, the impact of individual initiatives have been modelled to assess the net impact on emissions and give a high level overview of the cashflow position for these projects. The planned actions are tabled below (on pages 6-8) and provide details of the assumed target reduction percentage, as well as the potential start and end dates for each action.

It should be noted that analysis of financial impacts in relation to any estate rationalisation is based on energy costs only. For example, the savings from reducing the size of estate only accounts for reductions in energy consumption, and costs do not take into account revenue from selling or leasing property.

This is an evolving strategy that can be refined, but allows TMBC to understand their current position, the challenge, and options to meet the challenge.

Key Points of Model

Baseline Year	FY 2019-2020
BAU Emissions (Tonnes CO2e)	2,240.96
Investment required (£millions)	0.62
Cumulative net financial benefit to 2050 (£ millions)	0.27
Breakeven year	2041
Year to start Carbon Offsetting	2030
Carbon Offsetting required (Tonnes CO2e) 2030	-550

Comments

The emissions for TMBC’s own estate (office buildings, PCs, carpark lighting, own fleet, grey fleet and waste) have been split out, whilst the emissions associated with each of the outsourced contracts (Waste Collection, Leisure Centre and Grounds Maintenance) have been combined. This model has taken into consideration initiatives applied to TMBC’s own estate and outsourced contracts for the waste collection and leisure centre due to the size of the emissions associated with them.

The red line demonstrates the BAU emissions and the associated carbon emissions if no action was to be taken by TMBC and energy usage remained the same as the baseline year usage (FY 2018-2019). The BAU line can be seen to dip in places and these reductions are

largely due to forecasts around electricity generation becoming cleaner.

When looking at the baseline year, it can be seen that the Leisure Centre contract contributes significantly to the overall total of carbon emissions for TMBC. From 2022, it has been assumed that electricity will be sourced through a Green Tariff for the leisure centres, resulting in zero carbon emissions for electricity. An assumption for the installation of heat pumps for 60% of leisure centre gas usage further reduces emissions.

Carbon offsetting of tCO_{2e} 550 is required from 2030 (shown in pink below the x-axis) with the majority of this associated with the leisure centre contract. Without the assumed initiatives of heat pump installation and moving to a green tariff, (as well as smaller initiatives such as LED which are detailed in the below tables under planned actions), there would be a need to offset a further tCO_{2e} 753.

It has been assumed for the purpose of this model that rationalisation of Gibson West takes place from 2023.

The model assumes an installation of 3 solar PV arrays (totalling 150 kilowatts peak), with an annual generation of 135K kWh and exporting 25K kWh back to the grid.

As from 2030, emissions associated with road fuel for the waste collection contract have been reduced by 100%, as it is anticipated that the use of green vehicles can be built into the new contract at a cost of £100/tCO_{2e}.

Chart 1. TMBC Emissions – reduction in emissions associated with the application of planned actions to TMBCs own estate, leisure and waste collection contracts

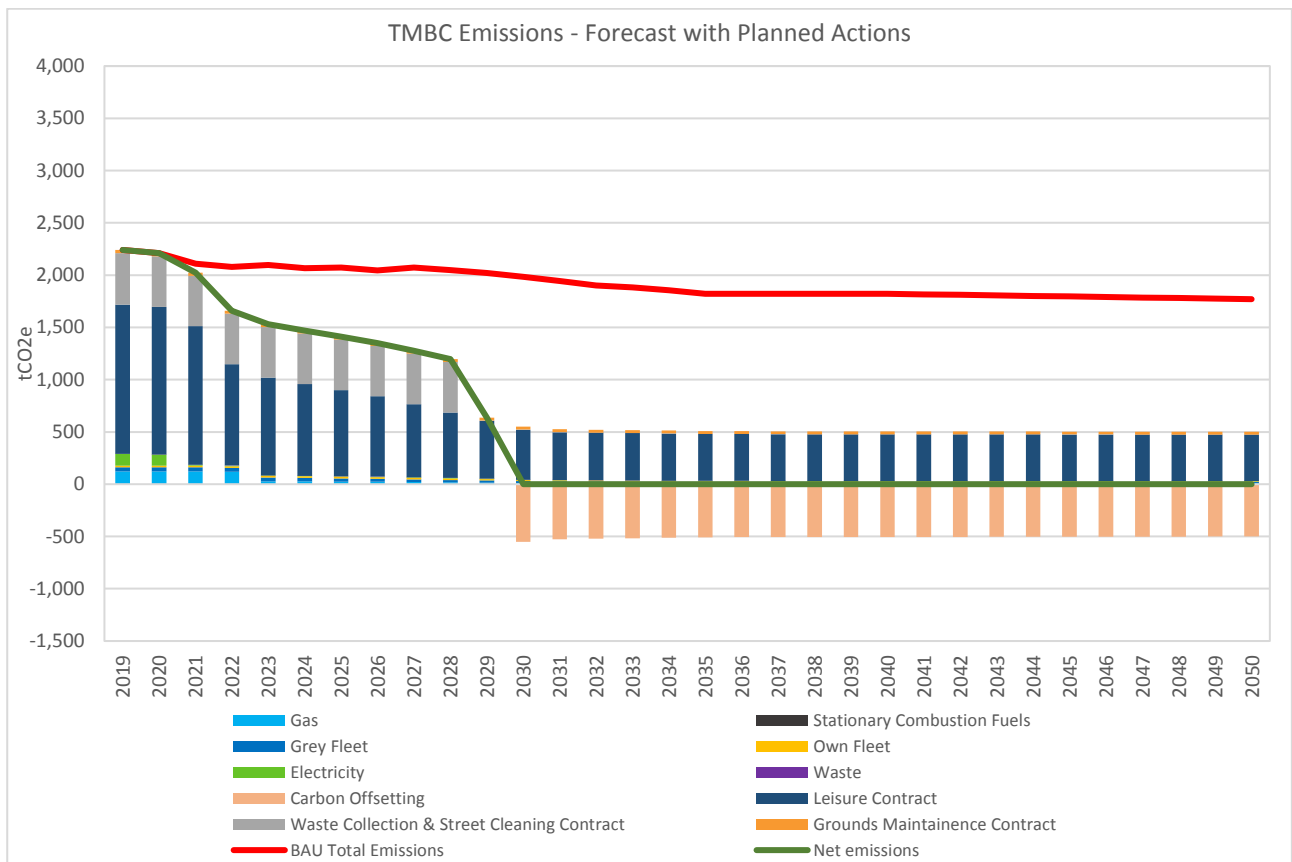
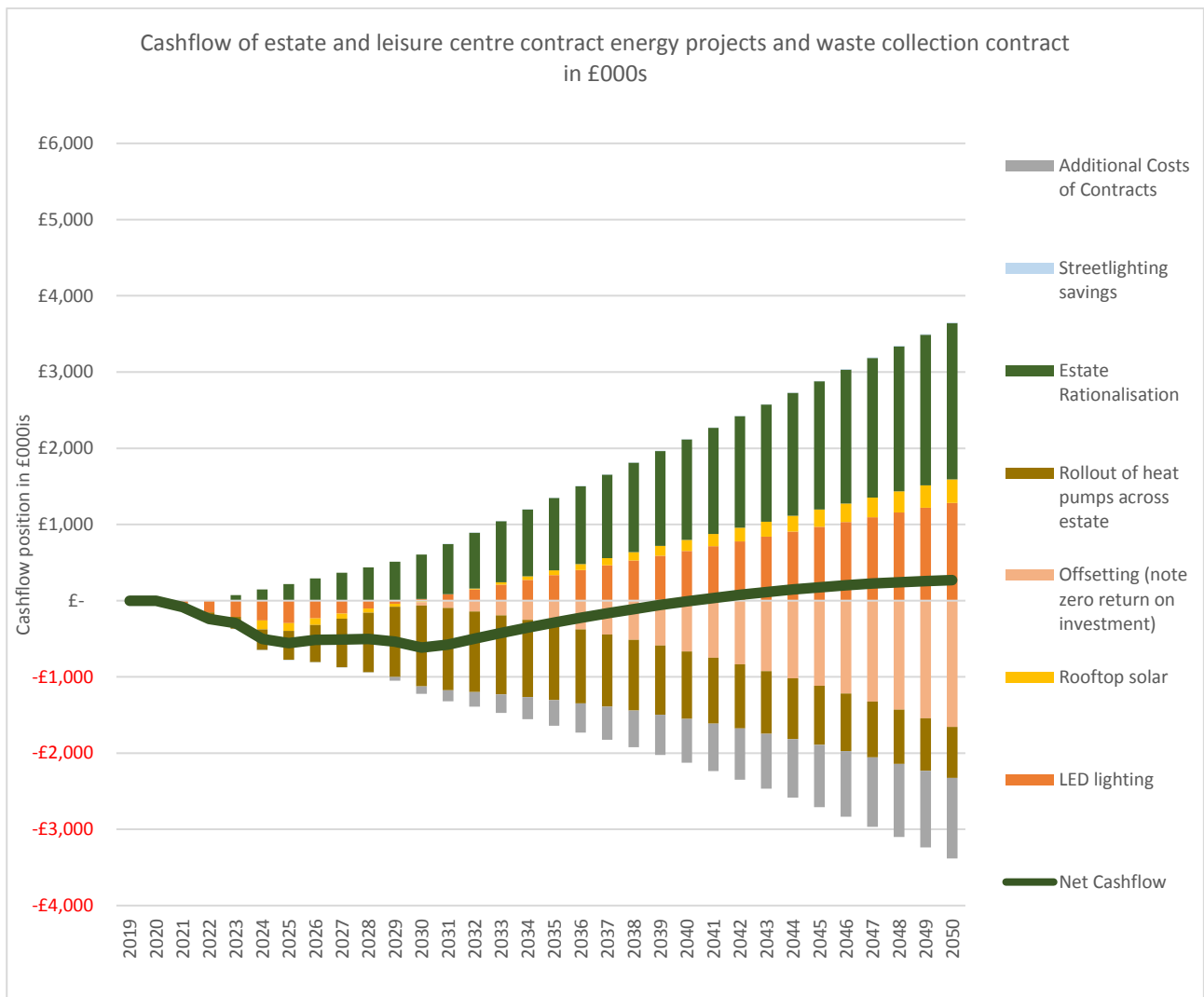


Chart 2 shows the cashflow of the projects with those generating a positive cashflow shown above the x-axis and those negative ones below. The net position is shown by the dark green line. Capital investment cost is included for installation of technologies and the associated energy costs. Additional costs of contracts (shown in grey) is in relation to the waste collection contract and the 'greening' of vehicles.



Planned Actions

The below tables detail the planned actions which have been assumed. Planned actions are made up of strategic actions and secondary actions. The investment and impact of the secondary actions are dependent on the strategic actions – i.e. the installation of heat pumps for TMBCs own estate is based on the remaining gas usage after the assumed disposal of Gibson West.

Strategic Actions

<u>Transport Actions</u>	Target Reduction	By	Start
Owned vehicle miles to be via electric vehicle – covers vehicles used by rangers / parking wardens	50%	2030	2028
Reduction of grey fleet miles travelled – covers business travel for meetings where staff use their own vehicles	40%	2030	2022
Grey fleet miles to be travelled via electric vehicle by - percentage figure is based on Future Energy Scenario forecasts from the National Grid	25%	2030	2023
<u>Estate Rationalisation & Carpark Lighting Actions</u>	Target Reduction	By	Start
<u>Office buildings, PCs and carpark lighting</u>			
Estate Rationalisation - disposal of Gibson West	43% for electricity and 75% for gas	2023	2023
Lighting for carparks- switch offs or further trimming and dimming to reduce energy use by 2030	20%	2030	2022
<u>Green Electricity Procurement</u>	Target Reduction	By	Start
Own Estate (remaining office building, PCs and carpark lighting) – Green Tariff	100%	2021	2021

Grounds Maintenance	-	-	-
Waste Collection & Street Cleaning	-	-	-
Leisure Centres – Green Tariff	100%	2022	2022
<u>Outsourced Contracts</u>	Target Reduction	By	Start
Waste Collection & Street Cleaning – the target reduction includes road fuel for wagons only and is assumed that there will be an additional contract cost of £100/tCO ₂ e associated with the ‘greening’ of vehicles	100%	2030	2030

Secondary Actions

<u>Action</u>	Target	By	Start
Install solar on roofs or grounds of TMBC estate – 3 arrays (c50kWp each) with an estimated annual output of 135K kWh per annum and export of 25K kWh.	-	2024	2024
Move gas heating to heat pumps for own estate and leisure centre contract, insulate those buildings for 20% reduction in heat loss	60%	2030	2022
Roll out LED lighting in remaining buildings, PCs and car parks for TMBC and leisure centre buildings where practicable – a 20% reduction in energy usage is assumed	60%	2025	2021

Summary and further points of note

A significant proportion of the carbon emissions seen in the baseline year are associated with the leisure centre contract (approximately 64%). In the second column below, the below table gives details of the associated cost of carbon offsetting if planned actions are applied to TMBCs own estate only and the greening of the waste collection contract. It demonstrates that the associated costs with offsetting for the leisure centres emissions dramatically

increase and also contains inherent risks as it leaves the council exposed to the market. Additionally, offsetting is seen by some as 'greenwashing' so needs careful management to ensure emissions saving are real.

	Planned actions applied to Own Estate, Waste Collection and Leisure Contracts	Leisure Centre not included within planned actions
Investment required (£millions)	0.62	2.32
Cumulative net financial benefit to 2050 (£ millions)	0.27	-2.32
Year to start Carbon Offsetting	2030	2030
Carbon Offsetting required (Tonnes CO₂e) 2030	-550	-1,303

To find out more about **LASER's Zero Carbon Future** please contact us or visit www.laserenergy.org.uk



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