

CASE STUDY | CARBON FOOTPRINT AND ACTION PLANNING

CLIMATE EMERGENCY

BACKGROUND

A large County Council committed to a net zero carbon emissions target for their own estate by 2030. To support their approach LASER was asked to provide practical and technical support to deliver a planned and costed approach to Councillors.

LASER recommended undertaking the following key steps in order to produce a **Carbon Descent Plan**:



Scoped out current 'own estate' emissions considering principles of Greenhouse Gas Protocol (best recognised international standard), and proposed what sources should be included.



Considered which emissions sources data is currently available for and which will need data collection processes establishing to allow measuring and modelling of the data going forwards.



Forecast future Business As Usual emissions to 2050 based on government published forecasts e.g. including much more renewable electricity (nationally) in the future.



Listed options to consider to take the Council from the business as usual emissions to the zero carbon target.



Modelled at high level the capital costs, carbon savings and financial benefits of a set of options.

SCOPING

After an initial meeting and follow up calls to agree the scope to be applied to the target and action plan LASER drew up the following scope summary:

SCOPE	PRACTICAL IMMEDIATE INCLUSION	INCLUDE BY MAY 2020	INCLUDE IN MEDIUM TERM (BEYOND 2022)	CONSIDER FOR LONGER TERM
CARBON NEGATIVE			Employee Commuting	
	Grey Fleet		Employee Business Travel (air, rail taxi etc.)	
	Electricity		Use of water	Supply Chain (upstream & downstream)
	Gas		Contracted Services (see include list)	Produce Use/Service Access by 3rd parties
	Oil	Household waste disposal	District Heating	Investments
	Other Fuels	Waste Disposal (3rd party disposal of waste)	Forestry	Districts Cooling
	Owned Vehicles	Fugitive Emissions	Agriculture	Process Emissions (water processing)
CARBON POSITIVE	Renewable Generation		Forestry (county parks)	
			Additional Tree Planting e.g. highways, county parks, land	

KEY – GHG Protocol Designations

SCOPE 1



SCOPE 2



SCOPE 3



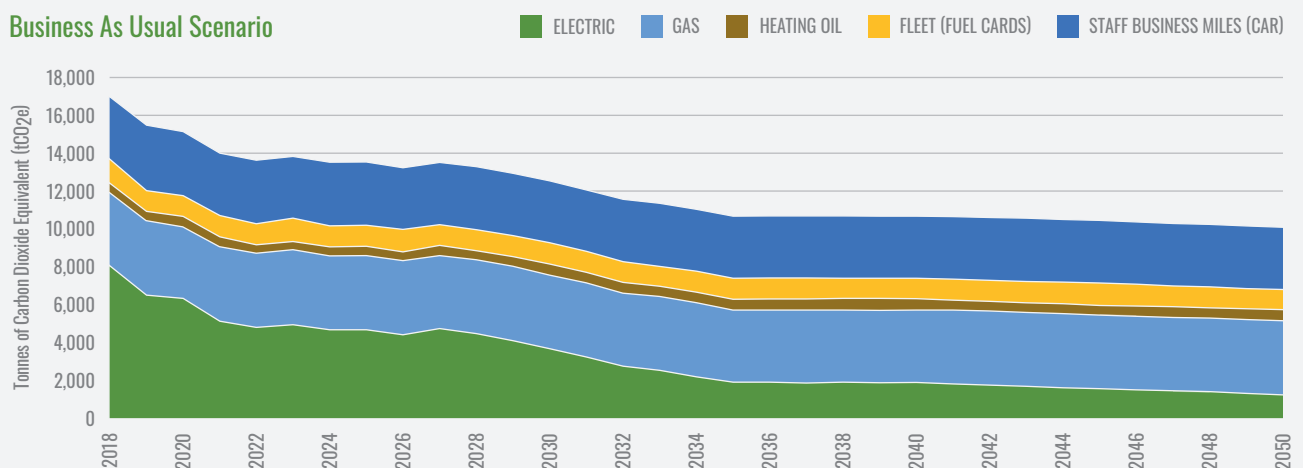
CARBON POSITIVE



CARBON FOOTPRINT AND BUSINESS AS USUAL FORECAST

Once the scope was agreed LASER collected all relevant data and calculated the carbon footprint. Modelling was then carried out to forecast Business As Usual emissions. This created a forecast of future emissions based on current Council and Government policy.

Business As Usual Scenario



ACTIONS

LASER met regularly with Council officers in order to create a list of potential actions which could be carried out in order to substantially reduce their emissions. LASER then modelled the actions and proposed a mixed scale in order to meet the target at the lowest cost.

The actions included in the modelling were:

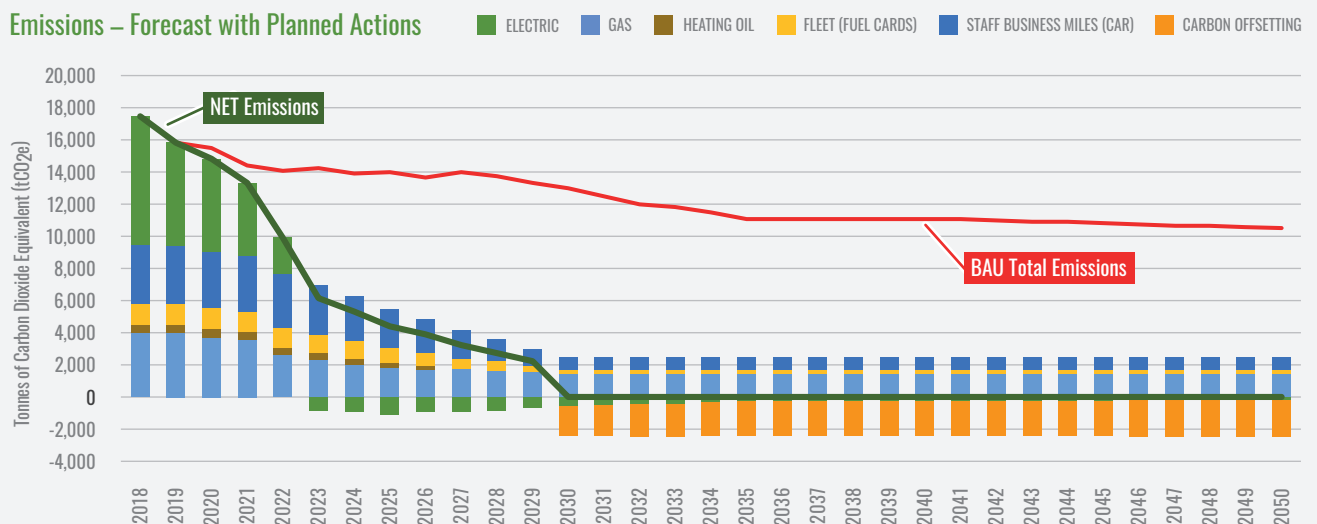
Transport	Reduce business miles travelled by 33% by 2030
	70% of business miles to be via electric vehicle by 2030
	Reduce fleet mileage by 10%
	80% of fleet miles to be via electric vehicle by 2030
Energy Efficiency	Roll out LED lighting in all buildings where practicable
Electricity Generation	Install solar PV on roofs of 16 more corporate buildings
Estate Rationalisation	Reduce buildings estate by 35% by 2030
Reduce Heating Emissions	Build town centre renewable heat network
	Switch remaining oil boilers to gas
	Move 30% of gas heating to heat pumps
Carbon Offsetting	Offset remaining emissions from 2030 onwards through an offset scheme

Other options were listed and may be modelled in a further iteration of the action plan:

- Offshore Wind (either as investment in or Power Purchase Agreement)
- Greater ambition on switching heating from gas to electric or hydrogen
- Tree planting to offset emissions
- Hydrogen fuelled transport

MODELLING FOR ACTION PLAN

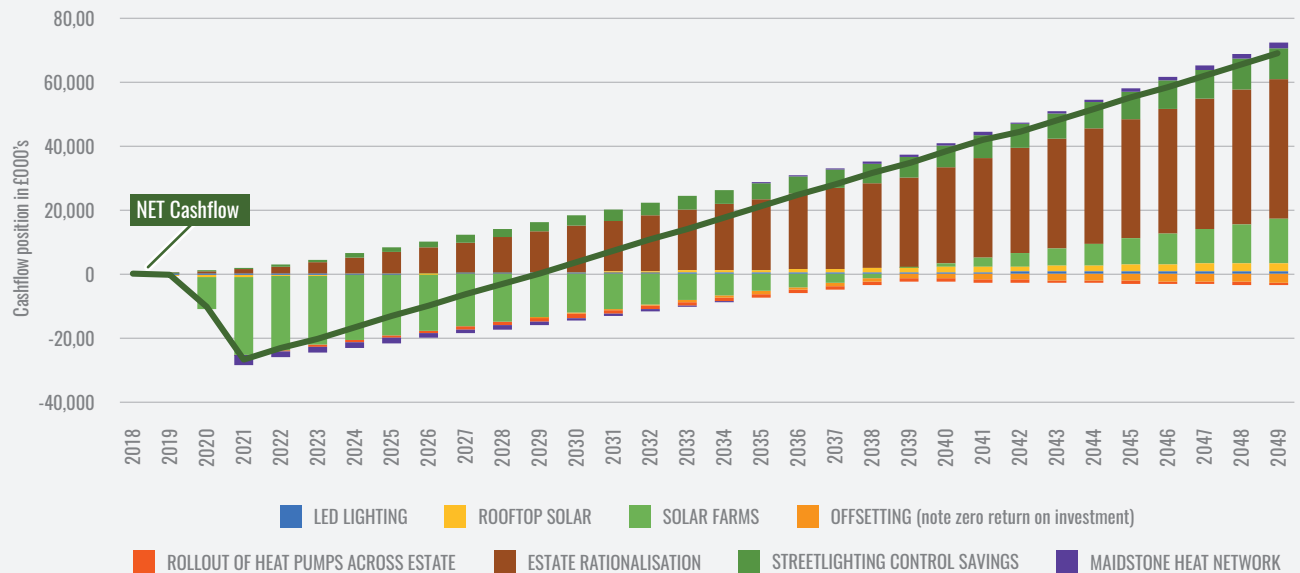
LASER created a forecast of Greenhouse Gas emissions based on the included options. The initial profile was created below (note the negative section of the graph results from generating more electricity than the Council uses and utilising a carbon offset scheme)



INVESTMENT COSTING

LASER created a high level cost model for the recommended options, this included a payback/savings estimation for each option, from which an initial cashflow chart was generated. The key options selected for the modelling have been selected because they provide a high carbon saving and a net positive financial return. Initial Cashflow model below.

Cashflow of built estate energy projects in £000s



Key Points

- Total Capital investment around £27M
- Capital cost of 2030 target may be fully recovered by 2030
- Significant net positive cash return over long term

ACTION PLAN AND DELIVERY

The steps listed above provide the key elements of a strategy document which can be put to decision makers in order to communicate the scale of the opportunity and investment required. As well as providing the modelling and action planning, LASER have a suite of procurement frameworks which can be utilised to deliver the chosen actions, whether these be buying green energy or leasing electric fleet vehicles.



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