

HAMPSHIRE COUNTY COUNCIL

Report

Committee	Cabinet
Date:	9 February 2021
Title:	The County Council's internal carbon reduction programme
Report From:	Director of Culture, Communities and Business Services

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Purpose of this Report

1. The purpose of this report is to update Cabinet on the progress made in relation to the carbon reduction and climate resilience targets relating to the carbon footprint of the County Council's own internal estate and activities. The County Council's carbon emissions as an organisation represent approximately 2.5% of the total carbon emissions for the county of Hampshire. The latter are addressed in the previous paper: *Climate Change Work Programme 2021-2025* from the Director of ETE. It is important that the County Council sets out clearly its own internal carbon reduction programme and progresses that as rapidly as it is able (within financial and technical constraints), in order to show leadership to the wider community and, in due course, meet statutory responsibilities and local ambitions. Targets for its own operational carbon emissions were set by the County Council following its declaration of a Climate Change Emergency in July 2019. The report sets out the latest estimates of the scale of the challenge these targets represent for the County Council as an organisation and reports on progress to date.

Recommendations

2. That progress on the carbon reduction programme be noted, including the recent award to the County Council of £29.8m of Government funding from the Public Sector Decarbonisation Scheme launched by the Department for Business, Energy and Industrial Strategy (BEIS).
3. That Cabinet note the estimated scale of the carbon reduction and climate resilience challenges to be faced by the County Council as an organisation and support further research required to improve the accuracy of the data. A

more detailed report including proposals for progressive targets in the context of a long-term strategy will be brought back for consideration in due course.

4. That Cabinet support the principle of annual reporting of the County Council's Scope 1, 2 and certain scope 3 carbon emissions in accordance with the internationally recognised Greenhouse Gas Protocol definitions.

Executive Summary

5. This report sets out the more comprehensive scope to be considered for the measurement of the County Council's carbon emissions, the complexities of obtaining accurate carbon data and the initial estimate of annual total organisational emissions in excess of 200,000 tonnes of CO₂ per year.
6. It confirms that a total of £32.6m of bids have been made to the Government Decarbonisation Scheme. There has, to date, been a successful award of £29.8m. Initial indications are that a further £2.8m will be awarded but we are awaiting formal confirmation. The successful bids to date, together with the recent adoption of a renewable electricity tariff, will deliver 6.8% carbon reduction overall – an excellent start to the Council internal reduction programme.
7. It sets out initial considerations for a long-term strategy to achieving net zero emissions over the next three decades, together with the estimated carbon sequestration equivalent that could be required.
8. Initial findings are reported on the risk exposure of the County Council estate to the potential impacts of a global average 2°C rise, including the proportion of certain sectors vulnerable to future heatwaves and flooding. Further detail on climate resilience will be reported to a future meeting.
9. The report concludes with some reflections on what the challenge of becoming a net-zero carbon organisation will mean for the County Council and the long-term thinking that will be needed across all aspects of the organisation to achieve this over the next thirty years.
10. The final section outlines the next steps for the coming year.

The Carbon Reduction Challenge

Scope

11. In order to meet the objective of net-zero carbon by 2050, it is proposed that the organisational emissions of the County Council are now assessed, measured and reported across the three scopes of the internationally recognised Greenhouse Gas (GHG) Protocol, to form a comprehensive GHG inventory:
- Scope 1: Direct CO₂ emissions from the heating of the corporate and schools' estate, together with the greenhouse gas emissions (methane and nitrous oxide) from the rural estate.
 - Scope 2: Indirect CO₂ emissions due to electricity consumption within the corporate and schools' estate and streetlighting.
 - Scope 3: Indirect CO₂ emissions caused by other organisations throughout the supply chain as a consequence of the activity of the County Council, including the manufacture, transport and construction of the Council's building and highway works, the procurement of goods and services, business travel, employee commuting and waste. Some elements of scope 3 emissions, such as investments, i.e. Hampshire Pension Fund, would remain excluded.

The Challenge of Data

12. Obtaining sound data and an accurate estimate of all three Scopes for the County Council's activity is considered a fundamental context for any future action plan. It is important that establishing and improving the quality of this data is recognised by the County Council as one of the most important actions to be taken at this stage, to inform the prioritisation of pilot projects and initiatives.
13. Whilst good data is available for the Scope 1 and 2 emissions caused by gas and electricity consumption, measuring Scope 3 emissions is a significantly more complex task, relying on the entire international 'carbon' network of other organisations and suppliers upon which all of the County Council's activity depends. This challenge is not unique to the County Council and is shared by all governments and organisations worldwide. The County Council is not required to report on all Scope 3 emissions but proposes to expand its reporting over time in line with best practise.
14. The Carbon Trust have been engaged and provided good initial support to the County Council with this Scope 3 estimation to date. Going forward this work will be led by the Director of Culture, Communities and Business Services (CCBS), building on the tools provided by the Carbon Trust, and working closely with the corporate climate change team led by the Director of Economy Transport and Environment.
15. Most of the Scope 3 data estimates provided by the Carbon Trust (based on best current protocols) have relied on the use of economic proxies that convert financial expenditure in the various categories directly into carbon emissions using a variety of conversion factors. Whilst these are useful for

estimating the relative size of an element of Scope 3, their application has limited value in the on-going future management of carbon emissions. With this method, carbon-reductions can only appear to have been achieved through less financial expenditure rather than progressively less carbon-intensive activity. Future Scope 3 work will therefore need to transition to the measurement of actual source data where possible.

16. There is currently a significant variance in accuracy between the measurement of Scopes 1, 2 and 3 for the overall carbon emissions ‘picture’ for the County Council. This variation is due to the use of the economic proxies and the emerging complexity of the Scope 3 task itself, with the accuracy variance in the Scope 3 estimate potentially equivalent to the total of Scope 1 and 2 combined. This matters because such variable outcomes sets a critical context to an assessment of the relative importance of the different emissions sectors. There is a risk of focussing on the relatively smaller areas of carbon emissions (Scopes 1 and 2) simply because more is currently known about them and because we are required to report on them, at the expense of addressing the more challenging bigger issues.

Initial Findings

17. The initial findings on the County Council’s Scope 1, 2 and 3 emissions for the year 2019/20 (excluding emissions from investments) are:

Emissions category	CO₂ emissions 2019/20 (tCO₂e/yr)	%
Scope 1	41,400	20
Scope 2	20,800	10
Scope 3	144,000	70
Total	206,200	
Working total estimate	200,000 tonnes	

18. The Scope 3 estimate could be as much as 60,000 tonnes higher once more detail is known. Including the County Council’s investments would make it significantly higher still.
19. It should be noted that this working estimate of the County Council’s total emissions at 200,000 tonnes CO₂e/year is over three times larger than the total of 62,000 tonnes currently published, due to the wider scope now proposed to be included. It is anticipated that this working total will need to be re-based each year, as further data becomes available and the level of certainty is improved.

20. With the County Council serving an estimated total population in Hampshire of 1,382,500 citizens, this total of 200,000 tonnes CO₂e/year gives rise to a metric of 144kg CO₂e/year per capita of population served. Consideration is being given to using this to compare the 'carbon efficiency' of the County Council in serving its population with that of similar Tier 1 Local Authorities and encouraging them through the Local Government Association to adopt the same metric in the future.

Prioritisation

21. To guide the future prioritisation of resources, the different categories of carbon emissions have been ranked in order of their relative size, regardless of their Scope 1, 2 or 3 definitions, in order to focus attention on the top 80%, as follows:

Emissions category	% of total emissions
<i>Top 80%</i>	
Embodied carbon in construction	29
Contracts for goods and services	22
Heating schools' estate	10
Food	8
Employee commuting	6
Methane from farms estate	5
<i>Bottom 20%</i>	
Electrical schools' estate	5
Business travel	5
Heating corporate estate	2
Streetlighting	2
Electrical corporate estate	2
Nitrous oxide farms estate	2
Off-site data storage	<1

22. As shown in the above table, carbon emissions embodied in the yearly manufacture, construction and repair of the County Council's infrastructure (buildings and highways) is the single largest defined category within this total, representing 29%. This is comparable to all Scope 1 and 2 emissions combined (30%) i.e. the annual heating and electrical consumption of the entire County Council estate, together with its farming emissions.
23. The following observations can be drawn from the above ranking:
- Construction of carbon-intensive new buildings and roads should be minimised and avoided altogether if possible.
 - Low-carbon repair and refurbishment of existing infrastructure should be optimised.

- Emissions from contracts for goods and services requires further breakdown and analysis.
- Emissions from the heating of the Schools' Estate are significant.
- Corporate Estate emissions are notable by their exclusion from the top 80%. This is due to the relatively small size of the corporate estate and the energy savings successfully achieved in this area to date over the 10 year period of the Carbon Management Strategy supported by the Panel.
- A model for carbon-based return on investment business cases should be developed for all future carbon reduction initiatives to direct resource where it will be most effective.

Progress on Carbon Reduction

Renewable Energy Tariff

24. The decision of the Cabinet meeting in September 2020 to support the change to a fully renewable energy electricity tariff for all corporate buildings and streetlighting will achieve a 4.7% reduction in the overall carbon emissions total. Although this use of the 'Renewable Energy Guarantee of Origin' (REGO) scheme will need to continue year on year to maintain this reduction, the current annual cost premium of £32,000 is very small against the annual expenditure of around £6.5m and can be offset by cost savings from the new energy contract. Use of this REGO tariff provides carbon-reduction at a cost of approximately £3/tonne of CO₂ saved and represents exceptionally good 'carbon' value for money.

Public Sector Decarbonisation Scheme Programme

25. Officers in CCBS have achieved significant success in securing £29.8m funding from the Government's Public Sector Decarbonisation Scheme, launched in September 2020. This is a grant fund announced by the Prime Minister in the summer to both reduce carbon and stimulate the economy ("green jobs") during the Covid pandemic. As one of the first public bodies in the country to benefit from this scheme, the County Council will be leading the way in this work within the public sector. CCBS Property Services have a well developed relationship with Salix (the government carbon agency) and were consulted by Salix to assist in defining the technical criteria for the assessment of bids.

26. Using the funding an intensive programme of decarbonisation work will now be delivered across over 400 sites within the schools and corporate estate during 2021, to meet the time constraints of the funding Scheme, comprising the following workstreams:

- Single to double glazed window replacements on school and corporate sites – total value of £20.2m
- Solar photo-voltaics on school sites – total value of £6.7m

- Oil to gas boiler conversion on schools and corporate sites – total value £2.8m
27. Confirmation of funding for a further workstream is awaited from BEIS which consists of £2.8m to improve heating controls.
28. Based on the £29.8m awarded to date, the programme is projected to achieve a 7% reduction in the direct heating emissions of the County Council in a single year, representing a strong start to achieving the Government reduction target of 50% in direct heating emissions for the public sector by 2032.
29. Each of these decarbonisation initiatives are estimated to achieve carbon reduction at a cost of £380-490/tonne of CO₂ saved, within the value eligibility threshold of the scheme of £500/tonne of CO₂. Compared to the £3/tonne of the REGO initiative, this highlights both the remarkable cost effectiveness of the REGO-based carbon reduction and the potential magnitude of the financial resource (from whatever source) that the County Council might need in order to achieve further carbon reductions from energy improvements to the built estate.
30. Against the total emissions of 200,000 tCO₂e/yr, the REGO tariff and the decarbonisation programme together achieve a reduction of 6.8%, representing very good progress in a single year.

Towards a Long-Term Strategy

31. Initial consideration has been given to a Long-Term Strategy for the phased reduction of the County Council's carbon emissions to net-zero over the next three decades to 2050, set against the background of the anticipated advances in global green technology and national infrastructure. This can be summarised as:

Time frame	Strategic theme	Strategic Target for County Council emissions
2020's	<i>Greening the Grid</i>	Near-elimination of Scope 2 emissions through the progressive use of renewable and zero-carbon electricity generation within the National Grid (all outwith the Councils direct control).
2030's	<i>Solving the Heating Problem</i>	Near-elimination of Scope 1 emissions through widespread investment in hydrogen

		and/or other zero-carbon heating and cooling technology across the built estate.
2040's	<i>Sequestration</i>	Sequestration of all remaining emissions to achieve a net zero position, following an anticipated halving of Scope 3 emissions by way of Scope 1 and 2 reductions within the supply chain and a transformation to low-carbon activity across the County Council during the previous two decades.

32. On the basis of advances in technology over the next two decades, together with an on-going and sustained transformation to increasingly low-carbon activity across all aspects of the County Council, the Carbon Trust have advised that approximately half of the current Scope 3 estimate could still remain by 2040. Sequestration of the remaining 72,000 tCO₂e/yr through absorption of CO₂ by the County Council's own natural capital will therefore need to be considered as a potential and significant component for achieving net zero by 2050.

The Climate Resilience Challenge

33. Initial findings on the risk exposure of the County Council estate to the potential impacts of a global average 2°C rise are as follows:
34. Significant proportions of the Adult Health and Care and school estate are at risk under a 2°C scenario of overheating during heatwaves, exceeding recommended thresholds for places of work. Without adaptations, these buildings in the estate, together with the internal temperatures reached, are set to increase significantly during the hotter, more frequent and sustained heatwaves anticipated.
35. Approximately 10% of the total gross internal floor area of the built estate currently lies within Environment Agency Flood Zones 2 and 3. With the anticipated increase in rainfall intensity and the fluvial consequences of sea-level rise, the floor area at risk of flooding is predicted to increase significantly.
36. A mean high-water sea-level rise of approximately 0.5m is forecast for the Hampshire coastline by 2050, affecting parts of the coastal landholdings of the County Council estate. Notably, the Calshot spit causeway will lie below mean high water, rendering use of the spit unviable. Storm surges will create coastal flooding higher still.

37. A more detailed report on the potential impacts of a 2°C rise by 2050 on the County Council's estate and services will be brought to Cabinet in due course.

Becoming a Net-Zero Carbon Organisation

38. As set out above, the emerging challenges presented by the twin policy objectives of net-zero carbon and increased climate resilience have a timespan and scale that is entirely different to even the most ambitious transformation programmes yet delivered by the County Council.
39. With carbon as a new 'currency', the greatest leverage will be obtained when carbon and revenue reduction initiatives can be aligned to save money and carbon at the same time, achieving their twin objectives whilst under-pinning improvements to service delivery.

Next Steps

40. Work over the next twelve months will focus on:
- The implementation of the £29.8m decarbonisation programme.
 - Improvements to the carbon emissions data, in particular the estimation and measurement of Scope 3 emissions.
 - A more detailed report on the potential impacts of a 2°C rise by 2050 on the County Council's estate and services.
 - The development of proposals for pilot projects, with 'Return on Investment' case studies for the prioritisation of carbon reduction initiatives that will focus impact on the most significant areas and leverage external funding.
 - The development of a Long-Term Strategy for the County Council's organisational carbon reduction and improved climate resilience, with progressive stepped targets over the next thirty years.

Consultation and Equalities

41. At this stage consultation is limited to internal departments and functions as the response to the Climate Change Strategy is developed.
42. There is no current requirement for an Equalities Impact Assessment, but these will be done when programmes of work are defined and developed that impact on service delivery or community involvement.

REQUIRED CORPORATE AND LEGAL INFORMATION:

Links to the Strategic Plan

Hampshire maintains strong and sustainable economic growth and prosperity:	yes
People in Hampshire live safe, healthy and independent lives:	yes
People in Hampshire enjoy a rich and diverse environment:	yes
People in Hampshire enjoy being part of strong, inclusive communities:	yes

Other Significant Links

Links to previous Member decisions:	
Buildings, Land and Procurement Panel: Climate Change and Energy Programmes Update	13 October 2020
Direct links to specific legislation or Government Directives	
<u>Title</u>	<u>Date</u>

Section 100 D - Local Government Act 1972 - background documents

The following documents discuss facts or matters on which this report, or an important part of it, is based and have been relied upon to a material extent in the preparation of this report. (NB: the list excludes published works and any documents which disclose exempt or confidential information as defined in the Act.)

<u>Document</u>	<u>Location</u>
None	