

Estate Decarbonisation

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1. Summary

In February 2019 Somerset County Council and the four Somerset District Councils declared a Climate Emergency. In November 2020, the Councils published a joint Climate Emergency Strategy. In line with this Strategy, SCC is working towards a Carbon Neutral Somerset by 2030 and to build our resilience for, or adapting to, the impacts of a changing climate.

In addition, the UK has set a legally binding target to achieve Net Zero by 2050. To meet this target, it is essential that the UK eliminates the use of fossil fuels for heating and transport. A zero-carbon world is predominantly electric. Power generation from clean renewable and low carbon sources will need to accelerate to support the increase in electrical demand resulting from the electrification and decarbonisation of heating and transport. A whole systems approach to energy is required, integrating energy conservation, efficiency, heat, and power supported by a smart, resilient flexible grid network.

Decarbonising heat is a significant challenge. Heat currently accounts for over a third of the UK's greenhouse gas emissions. The Committee on Climate Change Net Zero Report identifies that meeting this target will require far greater and faster roll out of heat pumps, and other sources of renewable heat, combined with high levels of energy efficiency.

To enable SCC to hit the Carbon Neutral target, and to meet the goal stated in Goal 1A of the Climate Emergency Strategy, the Property Department have started working on the significant task of decarbonise the Local Authority estate, assets, and operations across Somerset. Several estate decarbonisation projects across the County have been undertaken over the last two years; selected on the basis of the funding budget available, the Government Grant Funding awarded, and the level of CO₂ emissions reduction achievable. Members of the Committee will receive a presentation on this programme of projects, the resulting decrease in the carbon output of the Estate, and initial work done to forecast the requirements for further estate decarbonisation schemes.

2. Issues for Consideration / Recommendations

Scrutiny is asked to consider and comment on the accompanying presentation.

3. Definitions

3.1 Public Sector Decarbonisation Scheme

The Public Sector Decarbonisation Scheme (PSDS) provides grants for public sector bodies to fund heat decarbonisation and energy efficiency measures. Administered by the Department for Business, Energy, and Industrial Strategy, it is projected to have provided £2.5bn of investment to reduce the emissions of public buildings by 2025. Public Bodies can bid for this funding, with the outcome of phase 3b bids expected shortly.

3.2 Heat Decarbonisation Plan

A Heat Decarbonisation Plan (HDP) is a feasibility study conducted on the building assets of an organisation that details on a whole building level how the estate can be decarbonised. Somerset County Council has prepared an HDP based on feasibility studies undertaken at a total of 94 properties – 73 schools and 21 corporate sites – with funding from the Low Carbon Skills Fund (LCSF). This has allowed the projection of requirements for the decarbonisation of the wider estate.

3.3 Emissions

Somerset County Council calculates its emissions by collating data from a range of sources including utility bills and reports provided by third parties. The data is then converted into a carbon dioxide equivalent (CO₂e) to allow for comparison, and categorised in accordance with the International Greenhouse Gas Protocol (GHG), as follows;

Scope 1 (Direct Emissions): Activities owned and controlled by an organisation that release emissions straight to the atmosphere. Examples of Scope 1 emissions include emissions from combustion in owned or controlled boilers and vehicles.

Scope 2 (Energy indirect): Emissions being released into the atmosphere associated with the consumption of purchased electricity. These are indirect emissions that are a consequence of an organisation's activities, but which occur at sources that an organisation does not control. The most common type of scope 2 emission is electricity purchased for own consumption from the National Grid or third party.

Scope 3 (other indirect): Emissions are a consequence of an organisation's actions, which occur at sources which an organisation does not own or control. Examples of scope 3 emissions include business travel not owned or controlled by an organisation (e.g., public transport), commuting, use of grey fleet, water waste, and supply chain. Reporting is optional because data collection from these sources can be difficult, and estimates are often used leading to issues with the reliability of the data.

4. Background

4.1 The County Council's Carbon Footprint

Somerset County Council is committed to moving towards a Net Zero future and has set

an ambitious target within the Somerset Climate Emergency Strategy to achieve carbon neutrality across its estate and operations. The current scope of the Authority's carbon footprint includes:

- Energy usage across the Council's estate and operations (corporate estate, maintained schools, highways lighting, traffic signals bollards and signs, pumping stations and other energy consuming sites incl. Park and Ride despoths, owned and controlled by the Council). Energy is generally consumed for heating, lighting, and operating equipment, and is reported under Scope 1 and 2 emissions.
- Fuel usage related to the operation of the Council's owned vehicle fleet, reported under Scope 1 emissions and,
- Emissions arising from staff business travel (employee mileage claims, click travel data, and hire car fleets) and emissions related to the transmission and distribution of electricity, reported under Scope 3 emissions.

At present baseline emissions exclude emissions arising from properties and services which do not come under direct financial and operational control of the Council. Emissions from the sources would come under Scope 3, and are discretionary to include under the greenhouse gas (GHG) reporting protocol.

Data is collated from a range of sources including utility and fuel bills, and reports provided by third parties. The data is converted by the relevant conversion factor (CO₂e) for each reporting year as advised by the Department for Environment, Food, and Rural Affairs (DEFRA) and Department for Business, Energy, and Industrial Strategy (BEIS) to allow for data to be compared.

Emissions Performance

4.2

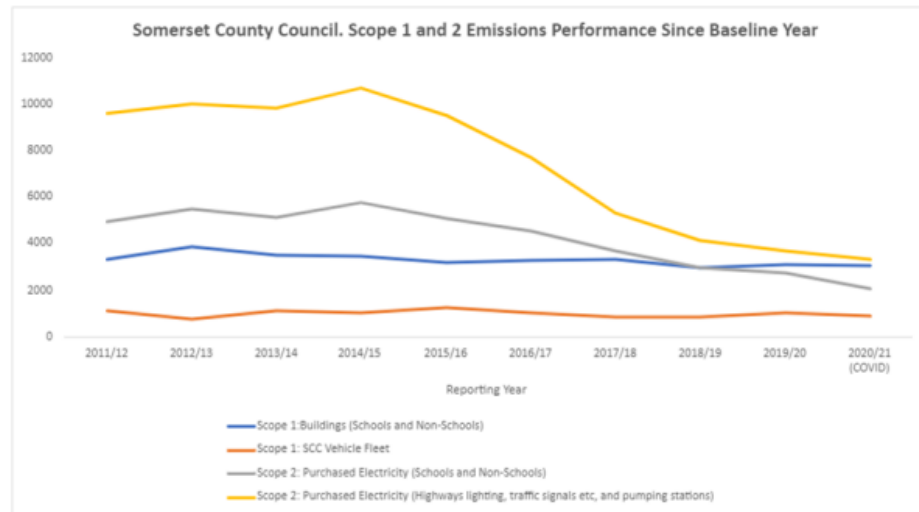
Since the baseline year 2011/12 up to the reporting year 2019/20 the Council has reduced its carbon footprint by 43.21%. Lockdowns during the 2020/21 year distort the underlying decarbonisation for that year, and the full reporting for 2021/22 emissions is not yet finalised.

Council initiatives and external drivers which have contributed towards a positive impact on the Council's performance since the baseline year include the following:

- Increased renewable energy and low carbon power generation on the UK's Power Grid leading to decreased carbon conversion values for purchased electricity (Scope 2 emissions);
- Roll out of LED and dimming across 56% of the Highways Lighting portfolio.
- A part night street lighting pilot across 12 rural parishes in the County. This project contributed towards Exmoor National Park's International Dark Skies Nature Reserve status.
- Energy efficiency improvements to plant and equipment, boiler replacements, heating controls, draught stripping, energy efficient lighting replacement and controls and Solar PV.

- Property rationalisation, and the development of 'hubs'- reducing the number of buildings and creating multi-occupancy buildings.
- Improvements to the Data Centre at County Hall, energy efficiency improvements to ICT and the move from desktop PCs and CRT monitors to laptops amongst other measures.

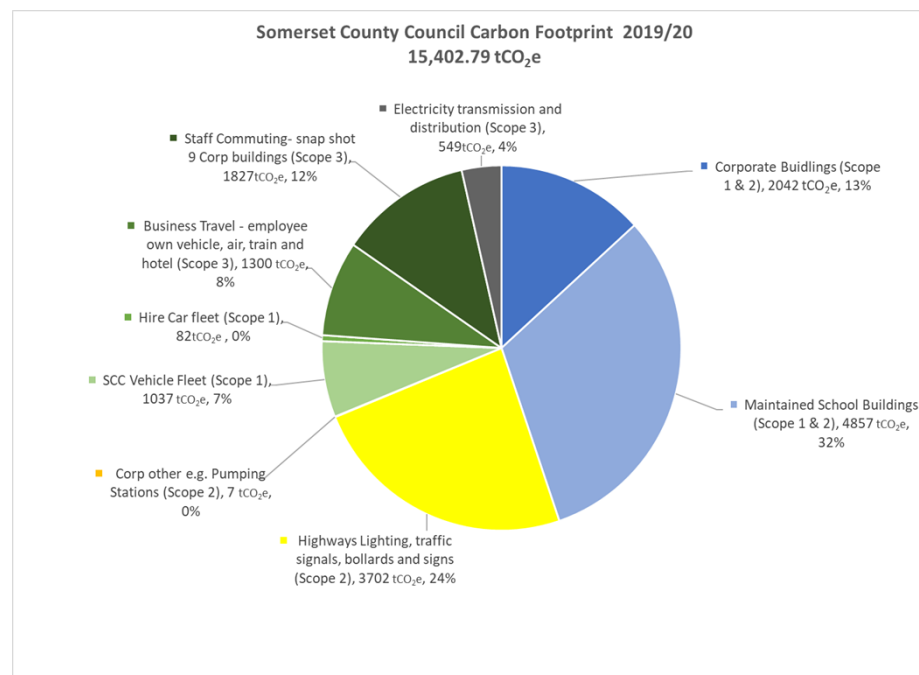
This data has been presented visually here:



The Council's Scope 1 emissions attributed to the consumption of fossil fuels for heating and transport have remained relatively constant since the baseline year. This mirrors the UK's greenhouse gas emissions performance and reductions to date.

Emissions Sources

4.3



The pie chart demonstrates the distribution of the Council's GHG emissions by activity. The property estate accounts for 46% of the Council's carbon footprint (Scope 1 and 2

emissions) based on the information and data currently collected.

The non-school estate accounts for 28% of the Council's Scope 1 Emissions, while the Maintained Schools Estate accounts for 47%. Therefore, schools are a key area to target to identify and implement measures to decarbonise heat.

4.4 *Our approach to the challenge*

In September 2020 central Government launched Phase 1 of £1 billion in grants available as part of the Public Sector Decarbonisation Scheme (PSDS) to reduce carbon emissions. Phase 1 provided funding over the financial years 2020/2021 and 2021/2022, with Governmental PSDS funding awarded to SCC standing at £4.1m alongside SCC's funding investment to date of £5.6m.

To date, SCC has completed 12 PSDS projects - 5 libraries, 3 Family Centres, 2 Schools, a Children's care site and County Hall B Block. In the main, these projects have removed fossil fuels entirely from the sites, although at Taunton Library and County Hall B Block some gas heating will remain in place following the schemes. Across the 10 projects to have completed to date, SCC have achieved an estimated carbon emission reduction total of 153 tonnes (estimated over a 12-month period).

One of these schemes, Yeovil Library was completed in November 2021 and is recognised to be the 2nd project nationally to complete under the Public Sector Decarbonisation Scheme.

4.5 *Strategy – the Fabric First approach*

When decarbonising buildings, we have taken a whole-building approach to the challenge. Rather than replacing components or changing specific parts of buildings, we have looked at the whole building and decarbonised it – as far as possible – in its entirety.

We have taken a "fabric first" approach, as this is fundamental to the energy performance and consumption of a building. Typically, around 65% of heat input is lost through the 'fabric' (roof, walls, windows) of a building.

The county council's strategy is to undertake practical and financially viable fabric upgrade measures, to remove end-of-life gas fuel supplies / boilers and replace these with electrical heating; where possible schemes also include local generation (Photovoltaics) to reduce Scope 2 emissions. We believe that this approach will deliver the best carbon reductions in the most cost effective, sustainable way over time.

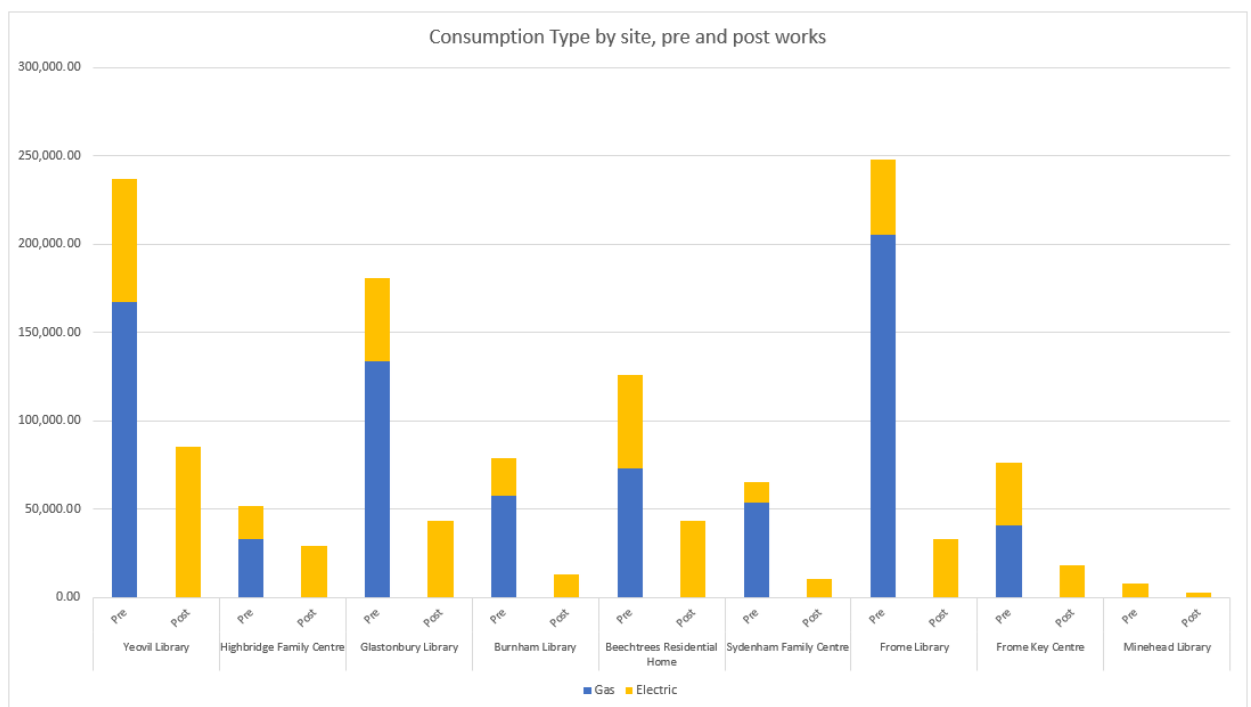
Alongside the PSDS-funded projects noted above, the county council is also funding major decarbonisation projects at Wookey Primary School, Wellington Library, Wadham School, with Minehead Library and Shepton Mallet library having already completed in 2022 and 2021 respectively. In addition, feasibility reports for heat decarbonisation have

been prepared for 73 of the LA Maintained Schools and 23 corporate sites utilising Low Carbon Skills Fund (LCSF) funding following successful bids to this programme and the award of c. £460,000 of LCSF grant. These studies take a whole building approach to maximise efficiency and savings, identifying implementation costs, and prioritising decarbonisation opportunities according to the life expectancy of existing heating systems.

4.6 What SCC has achieved since the Climate Emergency Declaration & Results so far.

Time has now passed since the completion of the first tranche of decarbonisation projects. This allows us to begin evaluating the effects of the works on our energy usage for the first time.

The graph below shows the kWh used by site pre- and post-works. Electricity is represented in orange and gas in blue.



There has been a significant reduction in total kWh used at each site. Some sites have seen their electricity consumption increase, although this is to be expected as all heating and hot water now runs on electricity rather than gas, except at Minehead Library which did not have gas appliances. Scope 1 emissions – the direct burning of fossil fuels at site – have ceased at all 10 sites.

4.7 Looking ahead – next steps in our Estate Decarbonisation journey

PSDS Phase 3B funding opportunities and bids have been submitted by Corporate Property Officers in October 2022, with bid outcomes expected to be received in March 2023.

To date, bids have been submitted by SCC covering 4 sites –

	<ul style="list-style-type: none"> • Kilve Court (Outdoor Education Centre) • Williton Library • Frome Community College • Oaklands Primary School, Yeovil <p>Alongside this, 2 further bids have been submitted by Somerset West & Taunton -</p> <ul style="list-style-type: none"> • Wellington Sports Centre • The Alcombe Centre, Minehead <p>4.7 <i>The longer-term</i></p> <p>In order to meet the carbon reduction pledge that was set, a rolling programme of decarbonisation projects will need to be undertaken across the County.</p> <p>Heat Decarbonisation studies on 73 of 124 maintained school sites identified projects totalling more than £66m that would reduce Scope 1 emissions in the schools estate by around two thirds (by around 2000 tCO₂e per annum). Further studies on some of our non-schools buildings have identified other projects totalling around £6m which are estimated to lead to a further reduction of 180 tCO₂e per annum. These cost estimates will have increased due to inflation since the studies were carried out; and even if all of this work were funded and carried out, a large number of fossil-fuel heating systems would remain. Nationally, the total estimated figure for decarbonising the public estate is in the region of £25-£30bn.</p> <p>It may be that some of this can be met by further funding rounds from the Public Sector Decarbonisation Scheme, but it is very likely that there will be a requirement for the Council itself to fund some or the majority of these schemes, and this will be a major challenge in the years to come.</p>
<p>5. Links to County Vision, Business Plan and Medium-Term Financial Strategy</p>	
	<p>The recommendations directly support the County Council’s Climate Emergency Strategy.</p> <p>SCC’s lead and approach on climate change and the 2019 Climate Emergency pledge has led to SCC being ranked by Climate Emergency UK as the top County Council in the country.</p> <p>Decarbonising of the Council’s estate is one step in SCC’s pledge to mitigate against further decline of environmental damage to the natural habitats of Somerset. When we look at a building from a “Fabric First” prospective, we are looking at not only the carbon savings that the materials used are going to provide to the building, but the carbon footprint of the journey involved in the process.</p>
<p>6. Financial and Risk Implications</p>	
	<p>The principal risks are:</p>

	<ul style="list-style-type: none"> • Planning / heritage approval required for future projects - this is a low risk as the necessary stakeholders for future projects will have been kept involved during the scoping and technical design development stages. • Materials / supply chain shortages – this is a medium risk as the knock-on effects from the well-publicised material shortages and inflationary pressures in the construction industry alongside effects from Brexit, the Covid Pandemic, Suez Canal delay impacts roll out across projects; some materials are on longer lead in times for ordering, which in turn impacts project timescales. • Meeting the grant funding conditions / risk of grant clawback - this is a low risk, mitigated through liaison with Salix as the grant administrators, subject to funding bids. Risk of grant clawback is classed as low risk as although the Council will report programme, costs, and actual performance on carbon reduction to Salix the clawback rights for the grant are limited provided that the measures agreed are delivered. The principal risk around grant clawback relates to timescales of delivery; it will therefore be a requirement that the Project Team liaise closely with Salix to ensure that approval is received for each iterative revision of the programme.
7. Background Papers	
	None.