FOR PUBLICATION

DERBYSHIRE COUNTY COUNCIL

IMPROVEMENT AND SCRUTINY COMMITTEE – CLIMATE CHANGE, BIODIVERSITY AND CARBON REDUCTION

MONDAY, 10 OCTOBER 2022

Report of the Director - Commissioning & Transformation

Progress Report for Property Decarbonisation

1. Purpose

1.1 To provide a report progress on the plans to decarbonise the council's estate and achieve Net Zero by 2032 or sooner.

2. Information and Analysis

2.1 **Global warming** is a widely recognised climate phenomenon.
A global rise in temperature is due to an increasing atmospheric concentration of 'greenhouse gases' including methane and carbon dioxide. The cause of this pollution is primarily the burning of fossil fuels which release carbon dioxide back into the atmosphere.

2.2 The UK is committed to reducing greenhouse gas emissions in accordance with COP26 commitment and the Climate Change Act 2008.

2.3 The Council is committed to achieving Net Zero for the corporate estate by 2032 or sooner. In order to achieve Net Zero, the energy use - and associated carbon emissions - must be reduced and the residual energy requirement must be offset by appropriate measures including generating energy from renewables e.g. solar farms.

2.4 The **Corporate Property** strategic approach includes:

- **Asset Management** undertaking a complete review of the corporate estate in a 5year review programme, identifying the buildings which are to be retained; those which are subject to further review; or are identified for surrender, demolition or disposal.

- Determining the suitability of individual buildings developed by reviewing service requirements and building suitability. Energy efficiency of the building is one consideration which is embedded into the review process.

- **Strategic Planning** for Decarbonisation
  Assessing the energy use and carbon emissions associated with the corporate estate; setting SMART targets to reduce carbon emissions to a realistic and appropriate level by reference to specific buildings. Setting a target energy budget for each asset.

- Identifying the most cost-effective **priority measures** to reduce energy consumption and associated carbon emissions by undertaking energy audits and quantifying the potential cost and benefit of remedial measures.

- To deliver **capital project programmes** which will implement the priority measures, targeted on the buildings which are to be retained. Further potential carbon reduction savings will be identified as and when further asset and service reviews are completed. The Carbon reduction programme is therefore continually aligned with asset strategy.

- Assessing the **energy efficiency and thermal performance** of all corporate buildings and identifying a league table of relative performance. To undertake energy audits and building surveys to identify any weak spots in thermal performance.

- Identifying the worst performing buildings and establishing an appropriate **minimum performance target**, with the aim to bring all buildings up to the minimum standard.

- To develop the ability to **monitor and manage energy use** associated with corporate buildings; to identify in greater detail where the energy is utilised so that waste can be identified, and improvement measures targeted to achieve the maximum benefit.

- Assisting Children's Services to develop the **decarbonisation strategy for schools** by similarly calculating an energy efficiency performance rating for all schools; ranking school buildings in a league table and helping to target improvement measures on the worst performing buildings.

- To identify **proposed design standards** for new build, extension and refurbishment projects which will include the necessary requirements to embed appropriate sustainability requirements into all project briefs.

- To pursue the development of **solar farms** to generate energy from renewable sources to offset the residual energy use.

- To embed the decarbonisation agenda into **planned maintenance** programmes to improve the thermal performance and energy efficiency across the estate.

- To identify options for the procurement of **'green' energy**. Green energy is generated from renewable sources and reduces the secondary carbon emissions associated with heating, lighting and operating council buildings.

2.5 **Progress Report**

2.6 **Asset Management**: Corporate Property has undertaken a complete review of the current strategy for each asset for the purposes of carbon reduction to target the proposed priority programme of carbon reduction measures on buildings which are to be retained.

The strategic asset review programme is currently in year 2 of 5.

26% of assets have been reviewed with regards to service delivery and building suitability.

22% of corporate buildings are currently subject to review.

The aim of property rationalisation is to make the most efficient use of buildings which are well suited to the delivery of services. One outcome of the strategic review is a reduction in the number of buildings which the council requires. Buildings which are surplus to requirements will be disposed of by termination of the lease, re-purposed to other uses, demolished, or sold. Property rationalisation will make a significant contribution towards reducing the carbon emissions associated with corporate buildings.

78 buildings have been identified as surplus from 2021.

It is currently estimated that planned property rationalisation will save 9.7 million kwh of energy use per annum, which is equivalent to a carbon

reduction saving of 1700 tonnes of C02e, and an annual financial saving of £2million.

2.7 **Strategic planning**: The existing energy use / carbon emissions associated with corporate buildings in 2021 equates to over 9100 tonnes of C02e. Some of this energy use is associated with heating and lighting corporate buildings, and some of it is associated with operation and use e.g. for cooking, and powering equipment or computers.

2.8 It is proposed to reduce energy consumption and carbon emissions associated with corporate buildings by approximately one third, to approximately 6370 tonnes of C02e by 2032 or sooner.

This target has been assessed by reviewing the potential savings across each asset portfolio associated with each service. This target is to be continually reviewed as strategic asset reviews are completed, and the effectiveness of remedial measures is assessed.

2.9 The following **priority measures** have been identified to deliver the carbon savings:

- Property rationalisation
- Microgeneration of electricity on site
- Active energy management requiring the Installation of remote monitoring kit to provide live data on energy consumption
- Retrofitting measures, including the installation of LED lighting Retrofits to upgrade the thermal insulation of walls and roofs.

These measures will achieve the quickest results and financial benefits.

2.10 **Property rationalisation** which includes proposed disposal, demolition, and termination of existing leases, will reduce the number of corporate buildings.

2.11 **Microgeneration** of energy on site – for example by installing photo-voltaic panels – reduces the electrical demand on grid. It provides ‘free’ energy. Every kilowatt generated is a kilowatt saved.

Photo-voltaic panels on corporate buildings currently generate 50,000 kwh of electricity.

It is proposed as a priority measure to install photo-voltaic panels on another 30 corporate buildings.

It is planned to generate another 760,000 kwh from microgeneration on site which is equivalent to a reduction in carbon emissions of 200 tonnes C02e.

2.12 **Active Energy Management** is an essential duty for a responsible building owner.

At present the council has very limited information with regards to live energy consumption. This lack of data limits the ability to identify where energy is being used; where improvement measures may be most effectively targeted, and where further investigation is required to address anomalies in energy consumption.

The council is currently unable to achieve remote monitoring of energy use. This requires the installation of new hardware to send monitored data to a web-based software centre accessed via the cloud.

The installation of remote monitoring kit and the development of an active energy management system is a necessary to become a responsible energy consumer and to achieve carbon reduction via effective facilities management.

It is proposed to assess alternative systems and develop an energy management system which provides live data with regards to the energy consumption for heating, lighting, cooking etc, along with internal temperature, and ventilation rates etc. This data will enable managers to fully understand operational energy use and identify potential measures for improvement or elimination of waste.

The estimated payback period for remote energy management is 6-7 years assuming a 5% energy efficiency improvement.

The necessary hardware is to be installed in the three residential care homes which are currently undergoing refurbishment. This will create a pilot project that will enable us to develop the system and assess the effectiveness of the proposed measure.

It also proposed as a priority measure to bring another 30 selected buildings into the system for active energy management.

It is estimated that Active Energy Management will reduce carbon emissions by 400 tonnes CO2e.

2.13 **Retrofit** will involve improvement to the mechanical and electrical services to increase efficiency – for example by the installation of more energy efficient lighting, improved controls on heating and lighting, or the installation of more efficient heating systems. Retrofit may also involve improving thermal insulation.

A programme of retrofit measures is included within proposed capital programme and the proposed planned maintenance programme.

An annual programme of thermographic surveys and energy audits is proposed.

It is estimated that retrofit measures will reduce carbon emissions by 200 tonnes CO2e.

2.14 It is not proposed to immediately **de-carbonise heating systems** across the estate by immediately changing to renewable heat sources such as heat pumps. The change from gas fired boilers to air source heat pumps - for example – requires careful site-specific technical assessment. Heat Pumps will eliminate the use of gas, and reduce carbon emissions, but will also result in an increase in electricity demand, which may increase the annual running cost due to the higher cost of electricity versus gas. As tariffs change the business case will also change, however it is important to have improved the thermal performance of the building and to install pv as a priority measure.

This potential decarbonisation measure will be considered in greater detail over the next year.

2.15 The **proposed Carbon Reduction Capital Programme** for 2023 identifies the priority projects based on the above analysis currently submitted for funding approval.

The total value of the programme is £6m.

The associated energy saving is estimated to be £2.26m kwh of energy use, which is equivalent to a reduction in carbon emissions of 450 tonnes of CO2e per annum.

Revenue funding to support project development and planned minor works is required. The appropriate bids have been submitted for finance approval.

2.16 **Solar Farm**(s): In order to achieve Net Zero the council will need to develop energy generating facilities. Corporate Property has undertaken a feasibility review of 15sites for potential development as solar farms.

2.17 APSE Energy are appointed to assist with this review and develop feasibility and business case proposals.

2.18 6 sites are potentially suitable for solar farm development, however at this time there is limited capacity in the National Grid and no likelihood of grid connection offers to 5 of the 6 sites at this time. This issue is currently subject to further investigation. The aim is to put forward a programme of potential solar farm developments which will generate energy from renewable sources.

2.19 1 site at Williamthorpe has secured the necessary grid connection offer. This site offers the first potential development opportunity, subject to securing the necessary approvals including planning permission.

2.20 The bid for £3.75m of capital funding has been submitted - subject to confirmation of the business case. The initial report is due to be received by

the end of September. It is then proposed to submit a report for council consideration and potential approval.

2.21 **Design requirements for New Projects**

Proposed design requirements for new projects are identified in relation to:

- Major New Build developments > 1000m2
- Smaller New Build and extension projects
- Existing buildings and refurbishments

The purpose of the proposed requirements is to ensure that all new projects are aligned towards the objective of achieving Net Zero and support the wider sustainability agendas.

The proposed standards set required performance ratings, and propose to eliminate or significantly reduce the continued commitment to fossil fuels.

These proposed standards have been subject to peer review and recently endorsed by the Climate Change and Environment Board.

It is proposed to present the proposed standards for adoption by the council from March 2023 following submission of the appropriate report and presentation.

2.21 **Facilities Management**:

The **energy efficiency of all existing corporate buildings** to be retained has been assessed relative to the national benchmark for energy consumption for each building type.

2.22 Each building now has a calculated energy efficiency rating from A to G, with A being ‘excellent’, D being ‘fair’ (exceeding the national benchmark standard), and E, Fand G being progressively worse. Buildings with ratings > D re priority targets for improvement.

2.23 Overall: Approximately one third of the corporate buildings are rated A to C; approximately one third is ‘fair’ - rated D; and one third are rated E to G requiring priority improvement measures.

The calculation methodology is consistent with the methodology used to assess building energy efficiency ratings for the purpose of producing Display Energy Certificates.

2.24 A recommended **minimum performance standard** is proposed which is 15% better than the minimum benchmark standard. This proposal has been endorsed by the Climate Change and Environment Board and allows us to set a proposed energy budget for each building.

2.25 **Green energy**

The council reviews the energy supply contract each year. Alternative energy providers offer green energy deals. However, in 2022 due to escalating energy tariffs it was not possible to procure green energy at this time. The supply energy contract will be reviewed every 12 months.

2.26 It is proposed to appoint external consultants to further review the carbon reduction strategies for Corporate Property.

3. Consultation

3.1 The above programme of recommendations and proposals has been reviewed with stakeholders and endorsed by the Climate Change and Environment Board.

3.2 Capital bids for 2023 are currently submitted for the proposed £6m Carbon Reduction capital programme, and for the development of the proposed solar farm at Williamthorpe subject to the normal process of review and project approval.

4. Alternative Options Considered

4.1 Do nothing: this is not an option if the council's objective of achieving Net Zero within the proposed timescales are to be realised.

5. Implications

5.1 Appendix 1 sets out the relevant implications considered in the preparation of the report.

6. Background Papers

6.1 none

7. Appendices

7.1 Appendix 1 – Implications

8. Recommendation(s)

That the Improvement and Scrutiny Committee:
a) endorses the above proposals
b) supports the proposed development of a solar farm to offset residual energy use, subject to approval of the proposed business case
c) supports the proposal to develop a system for active energy management

9. Reasons for Recommendation(s)

9.1 To support the proposed capital programme.

Report Author: **David Beard** **Contact details:** **david.beard@derbyshire.gov.uk**

Appendix 1

Implications

Financial

1.1 There are no direct financial implications in relation to this report, however, funding will be required for those schemes which come forward for progression. Individual schemes will be financially assessed for affordability, costs and benefits as part of Business Cases which will be completed for projects after initial feasibility works have been carried out

Legal

2.1 The Director of Legal and Democratic Services will provide advice as necessary on a project specific basis.

Human Resources

3.1 HR will provide input regarding any proposed building closures and any impact on human resources.

Information Technology

4.1 no issues

Equalities Impact

5.1 no issues

Corporate objectives and priorities for change

6.1 The corporate policy is to achieve Net Zero for the corporate buildings by 2032 or sooner, and to achieve Net Zero for the whole of Derbyshire by 2050.

Other (for example, Health and Safety, Environmental, Sustainability, Property and Asset Management, Risk Management and Safeguarding)

7.1 The Climate Change and Environment Board has reviewed and endorsed the proposals.

8 Power-point presentation as attached

Investing in a Sustainable Future for our Corporate Estate

Progress Update – Sept 2022