

**REPORT TO:** Climate & Environment Advisory  
Committee

**LEAD CABINET MEMBER:** John Batchelor

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23/11/21

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## **Stock Modelling for Zero Carbon and Improvements to energy efficiency across SCDC Housing Stock**

### **Executive Summary**

1. The Business Plan 2020-25 under the heading “Housing that is Affordable for everyone to live in” has the action – Improve the energy efficiency of existing Council housing to reduce carbon impact and running costs.
2. The measures are:
  - Carry out an audit of energy efficiency of existing housing stock relative to zero carbon target by March 2020.
  - Approve a work programme for insulation measures over the next four years to narrow the gap on the zero-carbon target.
3. This report has been written in order to provide an update on actions taken so far.

### **Key Decision:**

4. Yes. The work programmes we will need to take forward will result in the Housing Revenue Account having to support various retrofit works to significantly increase the energy efficiency and reduce carbon emissions in our stock.
5. This work will also have a significant impact on the wellbeing of many of our tenants and leaseholders that currently occupy the Councils housing stock and for future generations.

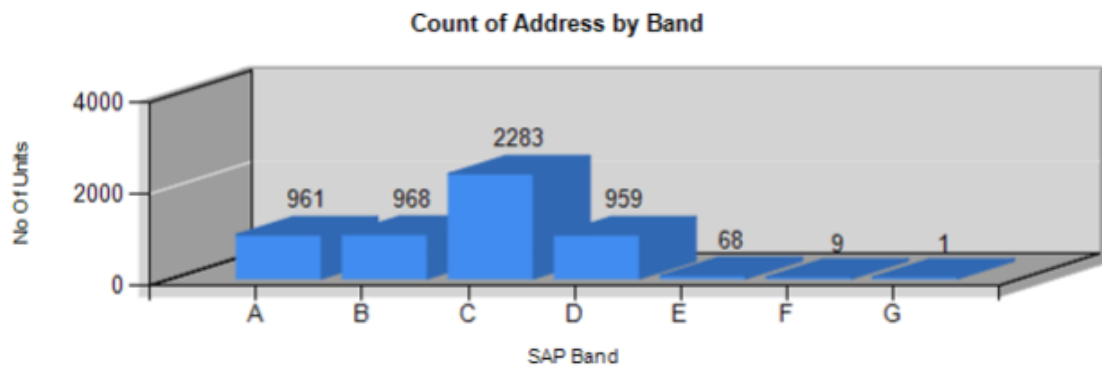
### **Recommendations**

6. To note the actions taken so far and provide any comments or advice.

### **Details**

7. SCDC has already undertaken a considerable amount of energy efficiency related works and has installed solar PV to 2110 dwellings, external wall

insulation to over 870 dwellings and various types of heat pump to 293 dwellings, this includes replacing early generation or failed heat pumps. The majority of pitched roofs are insulated with 250mm or more of loft insulation. In addition we have a programme of window and door replacements. We have upgraded our window replacement specification and are installing triple glazed windows. Our 5250 HRA homes have an average SAP rating of 77.67 . Which places the stock average in the green Band C for EPC rating. The graph below shows the breakdown of properties in each Band.



We have set out a 5-year capital programme that describes how we intend to invest in our stock over the next few years. Measures include, heating system renewal, new doors and windows, topping up loft insulation and cavity wall insulation.

8. In December 2019 we procured the services of Savills to carry out an Energy Audit of our stock. They submitted a final report to us at the beginning of April 2020.
9. The methodology adopted was to model a series of building improvements designed to reduce carbon emissions, against a selected set of property archetypes to determine the cost and the resultant reduction in both energy consumption and carbon emissions.
10. This approach recognises three important factors:
  - a. There is currently insufficient capacity within the electricity grid to support a wholesale shift towards carbon neutral heating, much of which relies on electricity to run the 'pumps' or as backup.
  - b. The shift to being carbon neutral relies on newly emerging technology the cost both install and operate this is currently prohibitive, but will reduce, the equipment will become more reliable, and as equipment becomes more efficient operating costs will fall over time.
  - c. Regardless of the method of heating, most energy efficiency gains can be delivered through a fabric first approach which increases insulation and therefore reduces heat loss within the structure of the building.

11. The Savills report suggested a two stage approach within the strategy for us to achieve our targets, first being reducing energy demand by improving the level of insulation. This includes external walls and internal ground floors. With the second to install alternative heating systems with heat pumps being suggested as the most likely technology to adopt.
12. The estimated budget to become “near zero carbon“ is in the region of £175.6m over the next 30 years. This equates to an average cost of £30,000 per property. If however you take into consideration the level of work contained within the current 30 year delivery programme, the budget requirement reduces to approx. £92m or £17,547 per dwelling.
13. The report goes on to suggest a series of actions that should be taken forward over the next 4-5 Years. These include
  - Model the stocks net present value to determine financial performance in light of the zero carbon standard and confirm the long term future to support the levels of investment required.
  - Review difficult to treat properties – a proportion of the stock will not be physically suitable to install heat pumps or external wall insulation.
  - Explore and trial technical solutions across building archetypes to ensure suitability and affordability.
  - Embark on the implementation of improvement measures to selected sustainable pilot properties / blocks / estates that reflect the wider agreed strategy.
  - Consult with Tenants and Leaseholders
14. In light of the recommended actions in the Savills report we procured a further contract with a company called Liberty named NetZero Co2 Collective. This is a collaborative project with several landlords of social housing across the Country and Southampton University Dept Climate Change. The project has two key aims – determine the most cost-effective way to retrofit properties and deliver “netzero” and identify how the delivery of decarbonisation of properties at scale can maximise economic regeneration in local communities.
15. We agreed to contribute 5 properties towards this project. In November 2020 data loggers and smart meters were fitted to each property, so that energy consumption, temperature values and humidity levels could be monitored, over a set period of time. The data collected was assessed by Southampton University over the summer months so that retrofit options and associated carbon savings could be modelled. A Decarbonisation Action Plan for each property was presented to us in August. I have attached two copies of these plans in the appendix for information. We are now working with Netzero to agree specific works, costings, tenant consultation and timeframes for fitting the measures that have been specified. Once installed the data loggers and smart meters will monitor the performance of the renewable technologies over the next two years.

16. The outputs of the project will allow us to model future cost and returns of specific renewable technology based upon actual performances and manufactures predictions.
17. They will also help us understand the limitations of each technology, physical, performance and financial requirements. And asses the carbon impact of each technology.
18. In addition to these recommendations we are also pressing ahead with our own internal actions. These are as follows:
  - We completed a desktop exercise to review what we know about the 78 properties within our stock that have an EPC rating of E, F and G. This determined that investment in these properties had been limited due to tenants refusing to allow improvements works to be carried out.
  - We had intended to carry out fresh stock condition surveys across these 78 properties, and speak to the existing tenants in an effort to understand the barriers that have prevented us from investing in them in the past. The Coronavirus pandemic has put this work on hold.
  - When any of these properties become empty, we will carry out improvements works taking account of recommendations made in the Savills report and the Netzero project. (This also includes Band D properties)
  - We will procure external consultants to carry out a stock condition survey across the whole of our stock in the new financial year which will allow us to develop a new 30 year investment plan.
  - Complete our refreshed Asset Management Strategy and publish in 2022
  - Continue to work with tenants to support education programmes around energy efficiency - energy tariffs, smart metering, energy saving lightbulbs, ventilation etc.
  - Continue to look at external funding opportunities from Central Government to support retrofit works to social housing.
  - Complete Internal Wall Insulation Works (IWI) to two non-traditional style properties and use this as a pilot project to inform further improvements works to similar style properties.
  - Complete the investment grade proposal to fit solar panels, battery storage, improved insulation works, energy saving lighting and EVCP's at Elm Court Over
  - Complete External Wall Insulation and Window replacement to two blocks of flats in Teversham and Fen Ditton.

## **Implications**

19. It's clear from the outcomes of the Savills report and the recommendations it contains, that there are significant financial implications to achieve the zero carbon standard. There will also be a lot of work ahead to consult and educate

or tenants and leaseholders about the type of retrofit works we want to complete and how this will effect how homes are heated.

#### **Financial**

20. See above. The overall cost of the work that Savills are recommending is in the region of £177m over the next 30 years. This will have a significant impact on the HRA.

#### **Legal**

21. See above.

#### **Staffing**

22. We need to consider whether it is necessary to recruit additional officers that have experience of procuring, implementing and managing large contracts to work alongside existing colleagues in our asset management team.

#### **Risks/Opportunities**

23. See above

#### **Equality and Diversity**

24. See above

#### **Climate Change**

25. See above – We will need to ensure climate change improvements are captured as a result of the work programmes that are being recommended.

#### **Consultation responses**

26. N/A

#### **Growing local businesses and economies**

27. As suggested by a model adopted in the City of Manchester there are likely to be opportunities to stimulate the local market through the award of retrofit contracts.

#### **Housing that is truly affordable for everyone to live in**

28. Increasing energy efficiency in our homes and fitting modern renewal technology will increase the opportunities for our tenants to reduce their energy bills making our properties more affordable.

#### **Being green to our core**

29. The retrofit programme that has been recommended will help us move towards zero carbon in our housing stock.

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30. We will need to consider carefully how we approach conversations with our more vulnerable and elderly tenants that will not want to have the intrusion or inconvenience of contractors coming into their home to complete improvement works.

Background Papers

Netzero – Decarbonisation Action Plans

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