

REPORT TO: Climate & Environment Advisory
Committee

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

Executive Summary

1. The Business Plan 2019-24 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.
 - Establish the Investment needed and work programme for insulation measures over the next five years to close the gap on the zero-carbon target by March 2024.
 - Number of Council houses improved, and the energy saving achieved.
 - Feedback on the benefit of warmer and cheaper to run homes from tenants.
3. This report has been written in order to provide an update on actions taken so far.

Key Decision:

4. Yes. It’s likely the outcome of this decision will result in the Housing Revenue Account having to support various retrofit work programmes in order 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 tenant that currently occupy the Councils housing stock and 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 850 dwellings and various types of heat pump to 218 dwellings, together with Quantum low energy electric storage heaters. The majority of pitched roofs are insulated with 250mm or more of loft insulation amongst a series of other measures such as boiler and window replacements. We have upgraded our window replacement specification and are installing triple glazed windows. Our 5300 HRA homes have an average SAP rating of 77.07. Which places the stock average in the green Band C for EPC rating.
8. 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.
9. In December last year 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.
10. The methodology adopted has been 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.
11. 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.
12. Within the report Savills suggest 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.

13. Calculations within the report show that these measures will reduce the total CO2 emissions from the housing stock from approx. 11,500 tons CO2 per year to 2,274 tons per year with average carbon emissions per dwelling reducing from 2.1 tons CO2/kg per year to 0.4 ton per year. The residual CO2 emission is due to the fact the grid has not been de-carbonised.
14. Energy consumed by a typical household reduces from an average of over 11,000 kWh/year to just over 3,100 kWh/year. However, as the energy is now all electricity, which currently has a higher tariff than gas energy, bills per tenant only reduce by an average 33% from £690 to £465 per year.
15. 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.
16. 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
17. In addition to the work that Savills completed for us we have 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. The project is designed to discover the impact of renewable technologies on their customers, their finances and the community.
18. Each housing provider will contribute 4-6 properties that will provide for an overall total of about 180. Each property will be assessed and specified renewables installed, along with metering and monitoring equipment, to gather data on the impact of energy consumption, conditions in the property and energy consumption.

19. 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.
20. Help us understand the limitations of each technology, physical, performance and financial. And asses the carbon impact of each technology.
21. This work will hopefully be starting in a few months time.
22. In addition to the 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 60 properties within our stock that have an EPC rating of E and F. This determined that we had not invested in these properties to date due to tenants refusing to allow improvements works to be carried out.
 - We had intended to carry out fresh stock condition surveys across these 60 properties earlier this year, in an effort to understand the barriers that have prevented us from investing in these properties in the past. The Coronavirus pandemic has put that work on hold.
 - We are now considering whether to procure external consultants to carry out a stock condition survey across the whole of our stock.
 - Complete our refreshed Asset Management Strategy and publish by August 2020
 - Work with tenants to support education programmes around energy efficiency - energy tariffs, smart metering, energy saving lightbulbs, ventilation etc.
 - Press ahead with our programme for 20-21 (162) to increase the supply of new doors and windows which will increase the SAP rating for many properties.
 - Continue with the current programme to replace boilers (223 in 2019/20) and upgrade electrical heating systems (106 in 2019/20)
 - Complete External Wall Insulation and Window replacement to two blocks of flats in Teversham and Fen Ditton.

Implications

23. It's clear from the outcomes of Savills report and the recommendations it contains, that there are significant financial implications to achieve the zero carbon standard.

Financial

24. 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

25. See above.

Staffing

26. 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

27. See above

Equality and Diversity

28. See above

Climate Change

29. See above – We will need to ensure climate change improvements are captured as a result of the work programmes that are being recommended. The renewables collaboration project that we have procured will offer us a good starting point

Consultation responses

30. N/A

Growing local businesses and economies

31. As suggested by the 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

32. 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.

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Being green to our core

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

A modern and caring Council

35. 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

36. None

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