HOUSING CARBON REDUCTION APPROACH

Folkestone & Hythe District Council
2023–2030

FOLKESTONE & HYTHE DISTRICT COUNCIL | TENANT APPROVED

Folkestone & Hythe District Council

The vision of the housing service is: ‘to create a truly excellent service - one that is digitally enabled, easy to do business with and where tenants (customers) are at the heart of everything we do’

Contents

Introduction

In 2008, the UK Climate Change Act set out statutory reduction targets for greenhouse gas (GHG) emissions. These were set against a 1990 baseline and originally required a net 34% reduction in carbon emissions by 2030 and 80% by 2050.

In 2019 the government established that this target was not enough, so the Climate Change Act was amended to commit the UK to achieving net zero carbon (NZC) by 2050. In effect this means that whilst some GHG emissions, (including carbon dioxide or CO2), will remain, these will be fully off-set, (removed from the atmosphere), by adopting measures to reduce the carbon footprint.[1]

Folkestone & Hythe District Council (F&HDC) has responded to this challenging target and has declared a climate change emergency. This means that as a council we have declared that we (council only) are committed to doing everything we can to try to reduce our carbon emissions by reducing our own carbon footprint to a net zero target by 2030.

The council is working towards achieving NZC by developing our Carbon Reduction Action Plan and a Net Zero Toolkit to help us, our partners, stakeholders and residents on the journey to tackle the consequences of climate change.

In achieving this net zero target we will also reduce the environmental impact on our district and contribute to the wider carbon reduction agenda.

1 The amount of carbon dioxide released into the atmosphere as a result of the activities of an individual, organization or community.

Some examples of F&HDC's carbon reduction initiatives include:

- Working with Kent County Council to roll out a programme of charging points for electrical vehicles across the district
- The council currently plant around 100 semi-mature trees a year with a focus on broad canopy trees for carbon uptake
- Planting wildflower meadows and managing land to promote biodiversity
- Reviewing the Civic Centre's recycling output and promoting recycling amongst residents.

Carbon reduction in housing

The 2015 government's Cutting the Cost of Keeping Warm Plan sets out policy and initiatives to introduce energy price caps, encourage more installation of smart meters, along with other measures designed to protect vulnerable households and tackle households living in fuel poverty[2].

As part of the wider ambition to meet the NZC challenge by 2050, the government, through their Clean Growth Strategy, set a target for social housing providers based on the Energy Performance Certificate (EPC) rating system, as this is a review of a property's overall energy efficiency level.

The target is for social housing to attain the minimum rating of EPC 'C'[3] for rented properties by 2035, (2030 for 'fuel poor' households). With the rapidly changing situation around the impact of COVID-19 and energy prices, it has become difficult to accurately predict how many households are in fuel poverty; however, it is expected that more households will struggle to pay their energy bills as fuel prices continue to increase.

Therefore, the F&HDC housing service has adopted a policy of planning for 'all our council managed homes to meet a minimum EPC level 'C' by 2030'.

2 Fuel poverty means a household is unable to afford to heat a home to an adequate temperature. It is caused by low income and high fuel costs.

3 The EPC rating is carried out by a qualified assessor and is colour coded on a scale from A-G, with A being the most efficient.

Folkestone & Hythe District Council's approach to achieving net zero carbon in our council managed homes

The health and wellbeing of those living in our council managed homes is of paramount importance to us.

Some studies maintain there is a strong relationship between poorly heated homes and respiratory illness. The Local Government Association has said that 'fuel poverty affects the most vulnerable residents and can have adverse impacts on their well-being.'

In the 1970s just a third of UK homes had central heating; today 95% of UK homes are centrally heated, with gas and oil fuelling more than 90% of the UK's housing stock.

However, gas and oil central heating produces a significant amount of emissions. The amount of CO2 emitted by a gas boiler is constant at 215 grams of CO2 per kWh of heat delivered (assuming the boiler is 85% efficient). Gas produces far less carbon than burning oil, which in turn emits much less than burning coal.

The government's 2020 Energy White Paper, 'Powering our net zero future', proposes new measures to start switching home heating to low-carbon alternatives. Although existing boilers will not need to be replaced immediately, it does mean that from the mid-2030s, it will not be possible to get a traditional gas or oil boiler installed. Instead, a low-carbon heating system, or an appliance that can be converted to use a 'cleaner' fuel, will need to be installed.

Of the total carbon emissions figure quoted in F&HDC's Carbon Action Plan, the electricity and gas consumption of the social housing stock[4], (Independent Living housing for older people only), comprises of approximately 57% of the council's total carbon emissions footprint[5]. This Housing Carbon Reduction Approach sets out how the housing management service will play its part in meeting the council's commitments to the NZC agenda, by applying 'NZC in use'[6] to our council managed stock.

This document details the overall approach, priority areas and how this work will be delivered, along with an indication of costs. The housing service is currently developing a new 30-year Housing Revenue Account (HRA) business plan, so that we can ensure that the cost of our projected delivery falls within the scope of the council and government targets.

This Housing Carbon Reduction Approach is part of a library of housing strategies and plans of which the Housing Asset Management Strategy is the primary technical publication that sets out F&HDC's commitment to investment in its existing and future council managed homes.

In support of the council's Climate Emergency, Objective 3 of the Housing Asset Management Strategy states a commitment:

"To improve the energy efficiency of the housing stock and the ways of working to reduce carbon emissions and levels of fuel poverty, by achieving a minimum EPC rating of 'C' by 2030."

This is an important milestone towards the longer-term goal to **"aim to achieve 'NZC in use' for all council managed homes by 2050"**.

The F&HDC housing stock accounts for only 7% of the total housing in the Folkestone and Hythe district and comprises of 3,397 homes. Houses are the largest proportion of the stock, followed by flats, in low and medium size blocks. Approximately 18% of our stock is Independent Living, (sheltered housing for older people), which comprises of traditional schemes, as well as some maisonettes and bungalows. There are also an additional 211 leasehold flats and six commercially leased properties.

In 2021 the government announced The Social Housing Decarbonisation Fund (SHDF), which is a £3.8bn government commitment over a 10-year period to improve the energy performance of socially rented homes.

4 F&HDC owned Council Homes

5 F&HDC Carbon Action Plan 2021.

6 UK Green Building Council definition of NZC in use: When the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset.

The government states that; "**Warmer, greener and cheaper social homes are on the way for tens of thousands of people living in social housing in England".**

Given the significant unknowns in achieving NZC by 2050 this document focuses on:

- **Retrofitting existing homes** — the stock condition survey told us that work is required on 47% of our 3397 properties to meet the target of EPC 'C'.
- **Building new homes (including refurbishment)** — we want to meet future housing need and provide more affordable homes for local people but our new build target is set against the competing demands on available resources. We will continue to work with partners to build new homes in the district and will be focussing on acquiring former Right to Buy homes and Section 106 (S106)[7] affordable new build.
- **Active behavioural change** — new technologies will require lifestyle changes for tenants who live in the council's properties. These changes will include taking a personal responsibility for actively helping to reduce energy usage e.g. using less water, improved recycling, and individual responsibility for helping to reduce energy use in communal areas. In return, tenants should benefit from a more comfortable environment and see a reduction in the cost of heating their home. Changes in how the services are delivered will be required e.g. through digital means, repair or replace, consideration of embodied carbon in specified products; improved product knowledge and coordination of work.

7 Section 106 (S106) Agreements are legal agreements between Local Authorities and developers; these are linked to planning permissions and can specific a percentage of homes that will be offered to the council as affordable housing

Context and costs

Nationally, to achieve the government's NZC target by 2050 it would mean retrofitting one million UK homes every single year for the next 30 years[8]. To place this into context, it represents five times the cost of building the planned new homes over the same period, and likely to be 10 times the investment behind HS2.

Even if sufficient funds were available, achieving NZC is not solely in the hands of F&HDC. A balance is required between zero-carbon supplies from the grid, (principally nuclear, wind, and solar energy), and the overall energy demand of the housing stock. There needs to be a balance of:

8 Rapley's energy & net zero carbon report February 2022

The foundation of a robust, scientifically based carbon reduction plan is the use of accurate data. Having completed a stock survey that included extensive energy data, this plan is founded on up-to-date information.

However, over time the figures quoted below may change as technologies become more affordable.

The estimated total cost of achieving NZC for the Housing Revenue Account (HRA) housing stock is in the order of **£132m**, **i.e. £39k per dwelling** and is broken down as follows:

- *Improvement works to achieve a minimum rating of EPC 'C' across the council's housing portfolio by 2030 is currently estimated at* ***£12.4m***
- *The cost of moving beyond EPC 'C' towards achieving NZC ready is estimated to be an additional* ***£120m.***

These costs cannot be supported by the Housing Revenue Account and although future government funding is anticipated, there is no guarantee we will be successful in bidding for it.

However, some costs can be slightly offset by coordinating with work needed to maintain the properties, e.g. replacing double glazed windows with triple glazing would be marginally more expensive, (the double glazed windows having been budgeted for in the HRA Business Plan). But simply installing triple glazing will not in itself produce a NZC property.

Against this backdrop F&HDC has therefore adopted the following approach to the NZC agenda:

- **'Fabric first'** — ensuring the roof, wall, windows etc. of homes are as energy efficient as possible. This will require coordinating programmes of planned maintenance to link closely with energy conservation work.
- **'Worst first'** — tackle properties with the lowest EPC rating first. However, there may be instances where it is simply not cost effective to carry out work, and a policy will be needed to determine the approach under such circumstances.
- **'Least regrets'** — minimising the likelihood of having to replace work through inadequate coordination of planned maintenance work and/or being an early adopter of new initiatives, e.g. the installation of air source/ground source heat pumps[9].

Although this document is written for the council's social housing stock, the authority also currently has 11 homes that are used as temporary accommodation. The properties are not part of the HRA, not classed as social housing, and not regulated by the Regulator of Social Housing, however, as part of good governance, it is intended that the same standards that apply to the authority's social housing also applies to these properties.

9 Ground source heat pumps are currently being promoted but their impact on tenant lifestyles is not fully understood.

Stock condition survey

This Housing Carbon Reduction Approach has considered the following key factors when agreeing our approach to carbon reduction measures:

- **Current knowledge of the housing stock**
- **Future expectations for social housing**
- **The increasing population of older tenants, along with the expectations and changing needs of current and future tenants.**

The comprehensive survey of the housing stock undertaken in 2021 surveyed 100% of the stock externally and 90% internally.

This document contributes to the significant investment that will be set out in the 2023 HRA Business Plan and annual budget process. Whilst the route to meeting the initial target of all stock achieving a rating of EPC 'C' by 2030, is relatively straight forward and can be costed, the journey beyond 2030 to achieve NZC by 2050 is far from clear with new technologies, government grant and direction needed to fulfil our commitment.

For new council homes, it will mean building to at least an EPC of 'A' whilst ensuring the properties are 'Net Carbon Ready'; for example, when domestic electricity generation is derived wholly from renewable sources.

A detailed programme has been developed to achieve the initial 2030 target. The plan will need to be reviewed annually as a future direction becomes clearer.

Corporate ambitions and asset management objectives

The F&HDC Corporate Action Plan is built on four service ambitions: Positive Community Leadership, A Thriving Environment, A Vibrant Economy and Quality Homes and Infrastructure.

All these service ambitions have relevance to the Housing Carbon Reduction Approach. Additionally, the plan proposes six guiding principles which are relevant in all we do as an authority and how we approach the delivery of our service ambitions. One of the guiding principles is a Greener Folkestone & Hythe.

The Carbon Reduction Approach document provides direction for the 30-year HRA Business Plan and contributes to the council's four strategic objectives in the following way:

	Corporate ambition	Housing Carbon Reduction Approach link
1	Positive community leadership	Investing in its existing and new social housing stock, supporting the council's Climate Emergency declaration, demonstrating positive leadership across the district and region.
2	A thriving environment	A multi-million pound investment in the housing stock and tenant lifestyle, will reduce carbon emissions, improving skills and the capacity of the district.
3	A vibrant economy	The cost of delivering the NZC agenda will require new significant investment, developing capability within the district to deliver the necessary work, contributing significantly to the circular economy.
4	Quality homes and infrastructure	Creating warmer, easier to heat homes will benefit tenants and neighbourhoods, making homes and the environment more attractive, contributing significantly to the physical and mental wellbeing of its tenants.

Achieving net zero carbon – retrofitting existing housing stock

The F&HDC Net Zero Toolkit (part 3) is focused on retrofitting the council's existing housing stock. It seeks to communicate the importance of retrofit, the benefits of retrofit and provides guidance on how to undertake this, which we hope will be useful for residents and building professionals alike.

A sister toolkit has been created for the new buildings in Folkestone and Hythe [Net Zero Toolkit-WS2-New Build].

The F&HDC housing stock accounts for only 7% of the total housing in the district, with housing associations 3%, private rented 17% and the remaining 73% are owner-occupied. Therefore, reducing the carbon emissions of the private sector will have the biggest impact on the district's carbon footprint.

Private Sector Housing – domestic retrofit programmes

The council's Private Sector Housing Team has an ongoing partnership with the Greater Southeast Net Zero Hub, (formerly the South East Energy Hub- the HUB), and their approved current contractor Warm Works. The HUB is the Government's preferred programme delivery partner for retrofit activity across the South East.

The initiatives delivered by the HUB aim to improve the energy efficiency of private sector homes in the district which are occupied by low-income households who are struggling to cover their heating and energy use costs.

The schemes, known as the Local Authority Delivery Scheme (LADS) and the Home Upgrade Grant (HUG), are delivered using money provided to the HUB by the Central Government. The programme provides grant funding to homeowners and landlords to help them improve the energy efficiency of their properties. The schemes focus on the properties in the district with EPC ratings of E, F or G. Private landlords are required to make a financial contribution toward the cost of any works completed.

The council is working with its partners to identify potential private properties in the district, using information held about households in receipt of benefits and also property condition data for the district. Phase 3 of the LADS and HUG 1 are due to complete by Spring 2023 with approximately 60 homes in the district due to receive retrofit measures to improve their energy efficiency. The schemes provide Zero Carbon retrofit measures such as air source heat pumps and insulation, rather than the more traditional measures installed during the previous phase.

The programme has unfortunately been delayed due to installer capacity issues within the market. The HUB are currently finalising their LADS and HUG programmes for 2023/24. The Private Sector Housing Team also provides direct assistance to vulnerable low-income homeowners who urgently require a new boiler system in their home, but who do not have sufficient funding or savings to complete the work. The initiative allows these households to access a repayable grant to cover the cost of the works. The team also provides general home energy advice where required to households and landlords across the district.

Council managed stock – current EPC ratings

Moving towards NZC will be complex and reliant on technologies yet to be discovered or commercially available. Future technologies may have life-cycle costs that are more expensive than current arrangements with the additional cost to be factored into future budgets.

This is not a time for F&HDC to be overly cautious towards progressing the NZC agenda, therefore we have made the decision to improve the fabric of our stock as a first step.

Future homes will need to meet both the NZC agenda and the needs of our tenants. How this will be achieved will need careful design and implementation. For example, replacing a gas boiler with a heat pump will produce less carbon but would currently incur higher running costs. This therefore needs to be offset with increased thermal insulation and the installation of 'Photo Voltaic' (PV) panels to produce electricity.

Technical solutions, such as improved insulation, are only part of the NZC journey. Actively working to adjust the routine behaviours we have all developed over many years will be critical and more complex to bring about the change. Likewise, expectations of tenants, staff and contractors will need to be managed over time. This will mean the housing service working with tenants to not only help them adapt their lifestyle to living in low carbon homes, but also their approaches to recycling, embracing a 'greener' way of living and communicating digitally with us. This is all part of the NZC in use journey.

In designing contracts there needs to be a deep understanding of the materials specified and their complete carbon cycle including

manufacture, delivery, installation and cost in use along with the embedded carbon at the end of a product's life cycle. These factors need to be understood, measured evaluated and factored into the approach to all future projects. In improving the EPC rating of the housing portfolio, it would be remiss if the carbon released through the delivery programme were not considered as part of the schemes' carbon life-cycle assessment.

Considerations in specifying contracts should include 'replace or repair' strategies; timber or uPVC and the use of recycled materials. With achieving full NZC[10] being dependent on changes to the national energy infrastructure, individual strategies will be needed for the different property types and locations using the guiding principles of 'fabric first, worst first and least regrets'.

Whilst focusing on improving the thermal insulation of homes is the primary focus for F&HDC's housing service, it will not be to the exclusion of other opportunities. When replacing existing infrastructure[11], the opportunity will be taken to explore broader and far-reaching remote monitoring applications. This could include remote monitoring systems that will no longer need an engineer to travel to site, working with tenants to help diagnose repairs remotely using smartphones, video-conferencing and the use of equipment that diagnoses and self-reports faults, will all need to be considered.

Also, remote door locking, (hotel style), that can do away with conventional locks and the paraphernalia associated with key management and lost keys could be considered. Such technology can not only make life easier for tenants and F&HDC, whilst reducing the carbon footprint of maintenance staff, it can also aid the safety and security of our tenants.

Within the stock, there are some 300 properties that are not on mains gas and rely on either electric, oil or LPG for their heat and hot water. These properties have EPC's ranging from 'E' to 'C' and will not only be costly to run, they will also have high carbon emissions.

Across the council's property holdings the HRA Independent Living housing schemes are some of the highest consumers of gas. However, the schemes generally have an EPC rating of 'C', with individual flats ranging from 'E' to 'B'. So, whilst the Independent Living schemes are some of the council's worst emitters of carbon, they appear to be relatively efficient in terms of EPC rating. Therefore, improved energy use in the Independent Living schemes will be addressed as part of a planned remodelling programme, which may include upgrading insulation etc. This will be closely managed concurrently with the retrofit programme and will focus on improving the worst EPC rated individual properties first.

10 The assumption is made that the housing stock will not move off grid and become totally reliant on renewables.

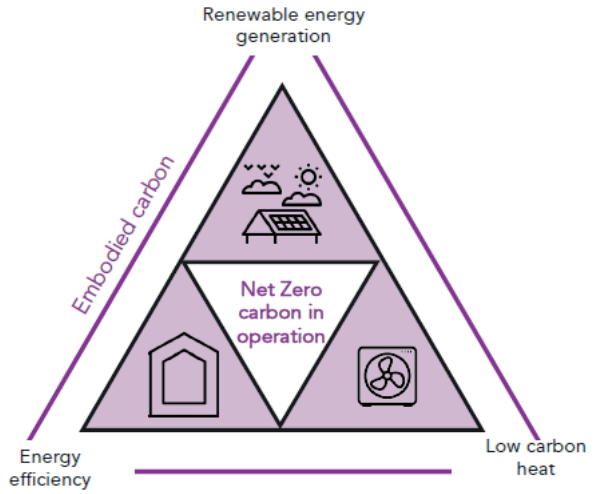
11 E.g. Lifeline365 / Telecare services

Retrofit principles

Retrofit and the hierarchal approach

Retrofit refers to the upgrading of the home to mitigate against climate change, while ensuring that the dwelling is well adapted to the changing climate. For a retrofit to be net zero compliant, the following hierarchy should be followed in addition to having alternative heating to a gas or oil boiler.

- **Energy efficiency** — buildings use energy for heating, hot water, ventilation, lighting, cooking and appliances. The efficient use of energy reduces carbon emissions and running costs.
- **Low carbon heat** — existing buildings need to transition away from gas and oil as soon as possible. Heat pumps offer an excellent way of transitioning to electric heating whilst reducing the electrical load on the grid as they are up to three times as efficient at turning electricity into heat.
- **Renewable energy generation** — renewable energy should be generated on-site. The roofs of existing homes should be utilised for PV panels where possible, to support the increased demand for renewable energy.
- **Embodied carbon** — refers to the greenhouse gas emissions associated with the: manufacture, transport and construction, (the upfront carbon); repair, maintenance and replacement, (the in use carbon); and the deconstruction and disposal, (the end-of-life carbon).



PAS (Publicly Available Specification) 2035, is the UK's first retrofit standard for a 'whole house' or 'whole building' retrofit. It is concerned with assessing domestic dwellings for energy retrofit. This involves identifying areas where improvements can be made and specifying and designing the relevant improvement measures. It is also concerned with the monitoring of domestic retrofit projects. F&HDC are following the principles of PAS2035 in all our planned retrofit works.

'Fabric First'

As previously mentioned, NZC works will be coordinated with the planned maintenance programme which operates on a 'just in time' basis and work plans will be driven by this programme e.g. when replacing windows they will be up-rated, ideally with external wall insulation being carried out at the same time[12].

12 The detailing of window design and positioning in the wall will be essential.

The net zero carbon tool kit that is used as industry good practice by the design guild will be used by F&HDC.

'Least regrets'

A key theme of the Housing Asset Management Strategy[13], is that work is carried out with a 'fabric first' approach. This means additional insulation would be installed where the need has been identified to achieve carbon reduction targets. However, it may not always be possible to carry out all the work needed at the same time, i.e. insulation, new windows and alternative heating. Therefore, we would take the 'least regrets' approach which in this example would mean that the window replacement programme would determine when the external wall insulation would take place and not vice versa or as separate pieces of work. Working in this way ensures that we will not have to 'unpick' any previous work to meet the NZC target.

'Worst First'

As a business, the HRA needs to ensure it is investing appropriately, so an appraisal model will be implemented that assesses the cost of work against the income received for the property to ensure a break even over five years[14]. If the 'fabric first' approach does not achieve a minimum of EPC 'C' then mechanical options will be considered.

F&HDC is committed to ensuring that we meet the needs of tenants and continue to provide affordable, safe, secure well managed homes that people want to live in. Whilst our aim remains to increase the current affordable housing portfolio, we may need to consider a pragmatic approach to those properties where it is uneconomical to retrofit.

However, where it is uneconomic to retrofit properties to meet the zero-carbon agenda, consideration will be given to their disposal. Although this may be a sound economic approach, it runs the risk of further breaking up the housing portfolio and does little to address the global NZC agenda on the assumption that purchasers will not achieve net zero carbon targets.

Therefore, properties that fall outside of this model will be referred to an Investment Panel for approval to spend on retrofitting or disposal[15].

Significant thought and knowledge need to be focused on the detailed design for retrofitting, ensuring future proofing for each property type is comprehensive and deliverable reducing the possibility of future abortive work.

The delivery process needs to be understood to ensure what is required is 'buildable' and can be maintained. Stringent quality control is essential to ensure the specified outcome is delivered. This will include training and guidance for tenants and maintenance operatives who will live and work with the finished product.

As with all asset work the tenants' needs have to be understood and built into the council's approach to de-carbonation from the outset. Replacing a gas boiler with a heat pump will reduce carbon emissions but will also reduce the immediate heat response that a gas boiler provides. On its

13 The primary document in the library of technical housing strategies

14 Average rent £150/week. Estimated cost of EPC C work £8000

15 Corporate officer panel, led by the Director of Housing and Operations that reviews all major commercial decisions and matters that do not comply with agreed strategies.

own, (without the use of supplementary renewables), a heat pump will also increase the energy costs to the tenants and potential life cycle costs for the HRA, which is something we do not want to do.

Housing operations helping to reduce energy usage

F&HDC has an agile working policy and wherever possible we will look to ask our contractors and suppliers to avoid making unnecessary journeys to sites and try to resolve issues remotely where possible.

We will:

- Train staff to take action on energy performance in communal spaces across the property portfolio, targeting key buildings which will save money on communal energy bills.
- Although the council is part of a collective procurement arrangement for energy, the housing service will endeavour to purchase green electricity where possible.
- Provide energy efficiency advice for all new and existing tenants to ensure they use the equipment in their homes efficiently and have appropriate energy tariffs.

It would be beneficial to carry out a CO2 heat mapping exercise to identify the most carbon-intensive categories of spend and collaborate with partners to implement carbon reduction plans.

Over the coming years smart technology will become a key part of enabling staff and tenants to communicate and monitor their energy usage.

To improve the management of energy in our Independent Living housing schemes, equipment will be installed to improve the control of energy. This will include smart metering, to enable tenants to monitor their own energy consumptions, as well as that being used in communal areas. This is particularly important as service charges become more detailed and specific.

Achieving net zero carbon – new build homes

F&HDC's Healthier Housing Strategy reflects the major and integral role that housing plays in promoting health and wellbeing. There are clear arguments and evidence to suggest that improving housing conditions significantly improves health outcomes for people. Housing and housing related factors are known to influence physical health, mental health and general wellbeing.

The council works closely with its local partners to maximise the delivery of high quality, affordable and sustainable homes in the district, taking a direct role in the delivery of new affordable homes for rent and low-cost home ownership, through its HRA new build and acquisition programme currently up to 2026.

There have been recent amendments to Building Regulations, (part L) about fuel and power, and (part F) about ventilation, which mean that planners are looking for a higher energy efficiency specification, as well as a new Approved Document to mitigate the risk of overheating in new homes. These changes, along with rising build costs, make new build more expensive for the HRA.

So, as a housing service we want to ensure we do everything we can to facilitate partners to build new affordable homes that are as energy efficient and environmentally friendly as possible over the coming **years. As** a responsible housing provider, F&HDC has robust processes in place to ensure compliance with all housing legislation.

The Department for Levelling Up, Housing and Communities, (DLUHC), has announced major Building Regulations changes, one of which is that new homes in England will have to produce around 30% less carbon emissions, and other new buildings such as offices and shops will have to cut emissions by 27%.

A new technical specification was also confirmed in the government's response to the Future Buildings Standard consultation, which will be consulted on in 2023, with the necessary legislation introduced in 2024, ahead of implementation in 2025. So, there is a great deal that can and will, be done to ensure that the new homes built by the HRA will be 'NZC ready' to accommodate future carbon reduction initiatives. Where existing homes and schemes are refurbished, similar principles will be aspired to as far as possible.

The council's net zero toolkit includes a 60 page section on new buildings. The toolkit is aimed at developers (small and large), architects, consultants and planning officers. It communicates how new developments that are consistent with climate change objectives can be designed and constructed. It covers both domestic and non-domestic developments and includes practical advice and metrics for those wishing to meet higher standards. It also includes cost information to show how this could be achieved in a phased and affordable way.

The council's ambitious new build target includes those affordable homes acquired by the housing service at Otterpool Park, acquisitions and Section 106 contributions from private housing developments[16].

16 The HRA Business Plan was updated in 2020 and redefines our development pipeline to 2026.

With the cost of achieving NZC via retrofitting existing homes, three to five times higher than for building to the standards from new, it is important to ensure that any new homes that are built or acquired are as far as possible NZC ready[17].

Where the council purchases homes, including through S106 agreements, it will have less choice and control over the layout, and thermal value than in the standards it sets for its own developments. In modelling the financial viability of any acquisitions, the cost of retrofitting the properties to meet 'NZC in use', will be part of the overall viability assessment.

Where this cannot be met, approval to proceed will be obtained through the Investment Panel[18]. In practical terms this is likely to mean new homes being built to EPC 'A' with the building being ready to accommodate further carbon reduction measures when they are available.

With the increased emphasis on reducing carbon emissions and with government support, off-site construction, (also referred to as Modern Methods of Construction (MMC[19]), will feature significantly in the New Homes Development Strategy. However, what can be built on a site is dependent on many factors and this method of construction will not be suitable for all locations.

It is important that F&HDC decides what type of MMC it will use, enabling procurement, as well as future maintenance cycles, to be developed, training will need to be given as new skills will be required to maintain the properties. Guidance and training to live in them will also be needed.

As with retrofitting existing homes, the same intimate understanding of detail design and construction will be essential in the homes the HRA builds, as well as those it purchases.

Currently the HRA development programme is focused on acquiring new affordable homes by appraising the feasibility for existing sites, pursuing S106 and former right to buy properties and ensuring that we work with and support our partners, such as Housing Associations to build more energy efficient, affordable homes in the district.

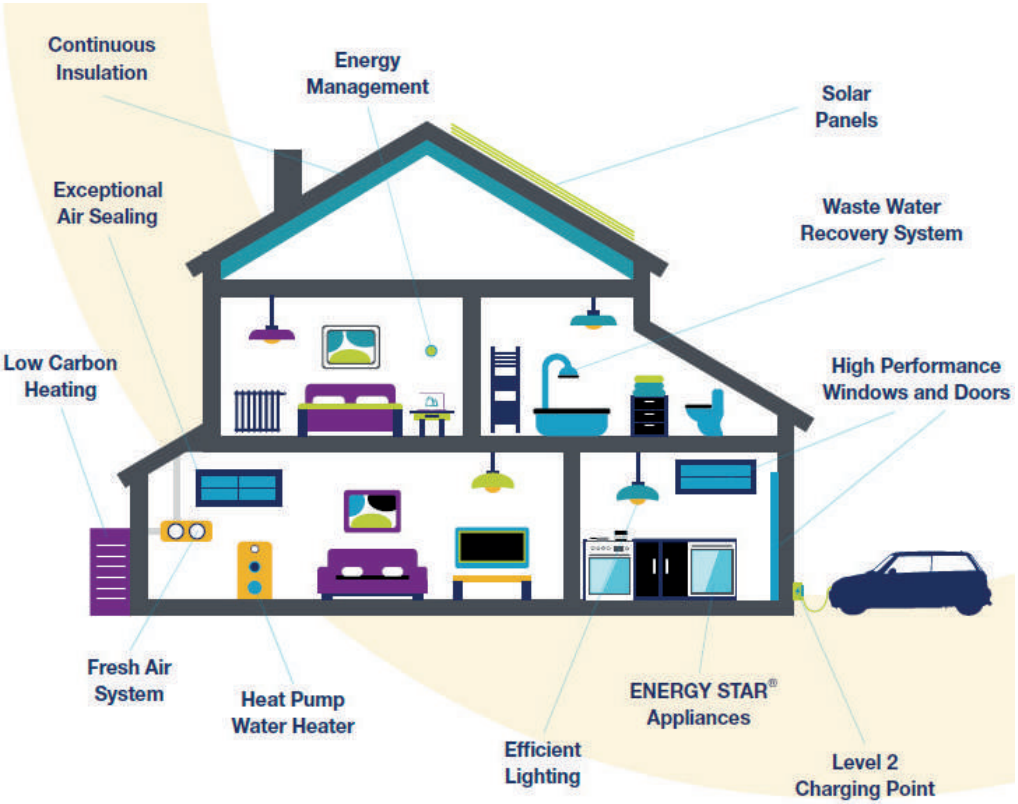
A 'Soft Landings'[20] approach will also be introduced which requires the team to be fully aware of the project's success criteria. It also ensures those responsible for the future maintenance of the building, along with the end users, be closely involved in the project, especially in the decisions which affect operation and management of the delivered building.

17 Full NZC will need changes to the national energy infrastructure

18 Terms of reference to be developed.

19 Modern Methods of Construction' (MMC) is a wide term, embracing a range of offsite manufacturing and onsite techniques that provide alternatives to traditional house building

20 Soft Landings – a strategy to ensure transition from construction to occupation is as smooth as possible.



Other assets

The HRA is responsible for the maintenance of a number of other properties including some commercial premises. The general principle will be for all properties directly managed by the HRA to move towards our energy efficiency targets by 2030 and 2050 wherever possible.

General approaches to reducing carbon emissions

The delivery of the NZC programme will create significant reduction in carbon emissions. The following are examples to be considered when specifying work and assessing tenders, and apply to new build and retrofit projects:

- Where possible all construction sites to be powered from the National Grid, reducing the use of diesel generators.
- Explore the use of solar and other renewable energy sources on major construction sites.
- Incorporate enhanced energy efficiency measures into site welfare cabins.
- Incorporate measurable environmental requirements into specifications and provide environmental training to subcontractors.
- Implement a Building Management System, capturing before and after data.
- Contractors will be required to demonstrate the same level of commitment to environmental sustainability as F&HDC e.g. ensuring waste is minimised and where possible, recycled, providing environmental benefits and reducing the cost of waste disposal.
- Ensure that all tenders assess the suppliers' carbon credentials and move the cost-carbon balance in favour of low carbon solutions.

- In evaluating tenders, consideration of the contractors' approach to carbon reduction over the life of the contract.
- Incorporating decarbonisation and broader environmental requirements in contract and specification documents, such as measurement and reporting of carbon emissions, carbon targets to be achieved and environmental innovation and process

- Developing and providing training for the procurement and contract management teams to support their engagement with suppliers on the net zero carbon journey.
- Communicating the strategy for decarbonisation with partners through literature, workshops and dialogue, and request that our partners share their net zero carbon commitments and progress with us.

Wider carbon reduction initiatives

It is already the case that at least 1.5C of global warming is 'locked in' and the impact of this warming, along with other adverse effects of climate change; air pollution and flooding, will form part of any holistic net zero strategy.

In improving efficiency and tenant satisfaction, building new homes and retrofitting existing homes, we will adopt a Building Information Management (BIM) system approach.

The council will look to maximise government grant funding for carbon reduction initiatives which may present opportunities for joint bidding.

We will consider lifetime running costs and carbon emissions, for example solar energy which could in turn create income. The council will promote active travel to new and existing tenants as part of all new developments.

Active behavioural change

It is important that our tenants, leaseholders, communities and stakeholders join us on our carbon reduction journey.

There are already many things that individuals and organisations can change to help reduce their carbon footprint.

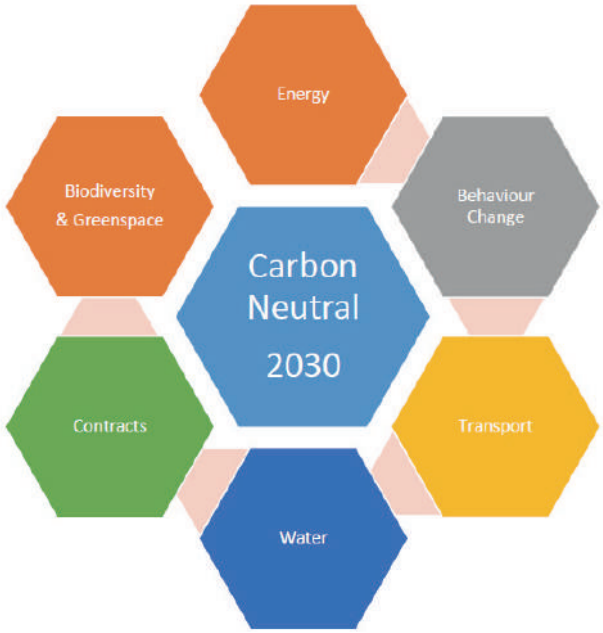
Measures to reduce the operating carbon footprint of the council's own estate and operations across the wider district and to adapt service delivery to address the impacts of extreme weather events, will have the potential to significantly reduce financial risk. They will also generate very real savings to the public finances in the future as well as delivering on corporate responsibilities to the environment and to our communities.

F&HDC will also be critical in playing an active role influencing behaviours through engagement with the local community to raise awareness of the need to respond to the Climate Emergency and to encourage commitment and ownership of the challenge.

At F&HDC we are further developing our Agile Working policy for staff. The implementation of more agile working practices during the national pandemic have allowed us to consolidate office space and reduce travel as below:

- Continuing to explore options to help colleagues minimise travel, particularly through the use of digital means.
- Developing smart scheduling to reduce travel to residents' properties.
- Encouraging the use of sustainable transport alternatives and accelerate the roll-out of our EV charge point infrastructure.

To become a 'carbon neutral' council, we believe that there are six main areas of work which will form the basis of actions required, as set out in the diagram:



It is worth noting that some areas of action are related to the council's role in influencing behaviours, which will of course make a positive contribution to the district's overall emissions.

In the case of those living in council managed homes, working together to actively change traditional lifestyles and behaviours is vital to ensuring the success of the housing service's initiatives designed to significantly reduce our carbon footprint over the coming years.

Focusing on continuous improvement in carbon performance in our homes and the role of tenants in delivering and monitoring improvements with us is a crucial part of this Carbon Reduction Approach.

Heat pumps

Low carbon heating and cooling is critical for achieving net zero. NZC buildings should not burn fossil fuels for energy, this is fundamental in meeting carbon reduction targets. Low carbon alternatives that are available now include heat pumps and direct electric active systems. Electricity can be met through on-site renewables and through grid electricity, which is becoming increasingly decarbonised.

Heat pumps are the most efficient way to deliver heating and cooling. Heat pumps use refrigerant to efficiently move heat from one place (outside the building) to another (inside the building). They can source heat or dump heat (depending on whether they are in heating or cooling mode) to the outside air, the ground, or a water source. Heat pumps can provide space heating, cooling and hot water and can serve individual buildings or communal networks.

The key benefit of heat pumps is how little energy they use to meet a heating or cooling demand, this is measured by their efficiency. Efficiencies vary but are typically around 250-300% for an Air Source Heat Pump, meaning that for every 1kWh of electricity they use, they produce 2.5-3kWh of heating or cooling energy.

What are the different types of heat pumps?

Heat Pump	Space heating?	Domestic hot water?	Description
Monoblock or split (air source) heat pump 	✓	✓	This heat pump is highly efficient and works with radiators, underfloor hearing and domestic hot water generation. These heat pumps require space for indoor and/or outdoor units.
Exhaust air heat pump 	✓ Provides some level of heating by heating air that is circulated through the home	✓	An exhaust air heat pump (compact unit) combined a heat pump and a MVHR. Some products can only meet the heat demand in smaller dwellings and/or dwellings with a space heating demand <15kWh/m²/year.
Integrated domestic hot water heat pump 	✗ Heating must be provided by direct electric (DE)	✓	This is a heat pump integrated into a hot water store (i.e. hot water heat pump). They require space for a hot water store. Heating is delivered through direct electric panel radiators.

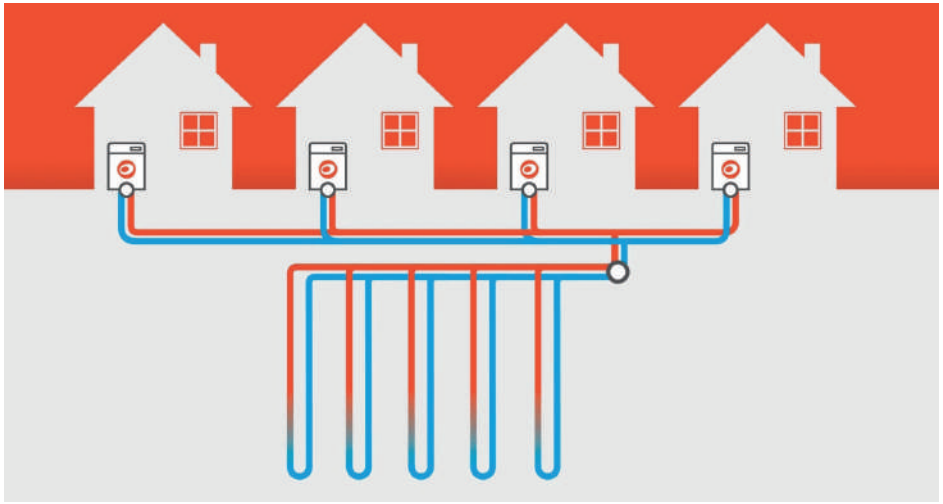
Ground Source Heat Pumps

Ground source heat pump district heating networks are perfect for some social housing schemes, as they can replace old district or communal heating systems and can offer tenants significant savings on fuel bills, whilst keeping homes warm and contributing to reduction of carbon emissions.

In such heating schemes, a ground source heat pump can be installed into each home, providing heat and hot water at the point of use. By connecting individual heat pumps through Shared Ground Loop Arrays, each household can have independent energy bills, heating and hot water. The decentralised approach prevents issues such as heat loss through the distribution pipework and overheating – a common problem for traditional residential district heating systems.

Close-knit social housing communities can use Shared Ground Loop Array systems for quicker installations and reduced groundwork costs by sharing smaller numbers of deeper boreholes. Using the drilling equipment whilst on site means projects can save on multiple mobilisation costs compared to disparate projects.

Ground source heating technology is an area that F&HDC are keen to investigate as it may be more suitable for some of our stock, especially our Independent Living schemes, in the future.



Airtight and moisture reduction

When retrofitting existing buildings, a few key principles must be followed to avoid exacerbating or introducing moisture problems.

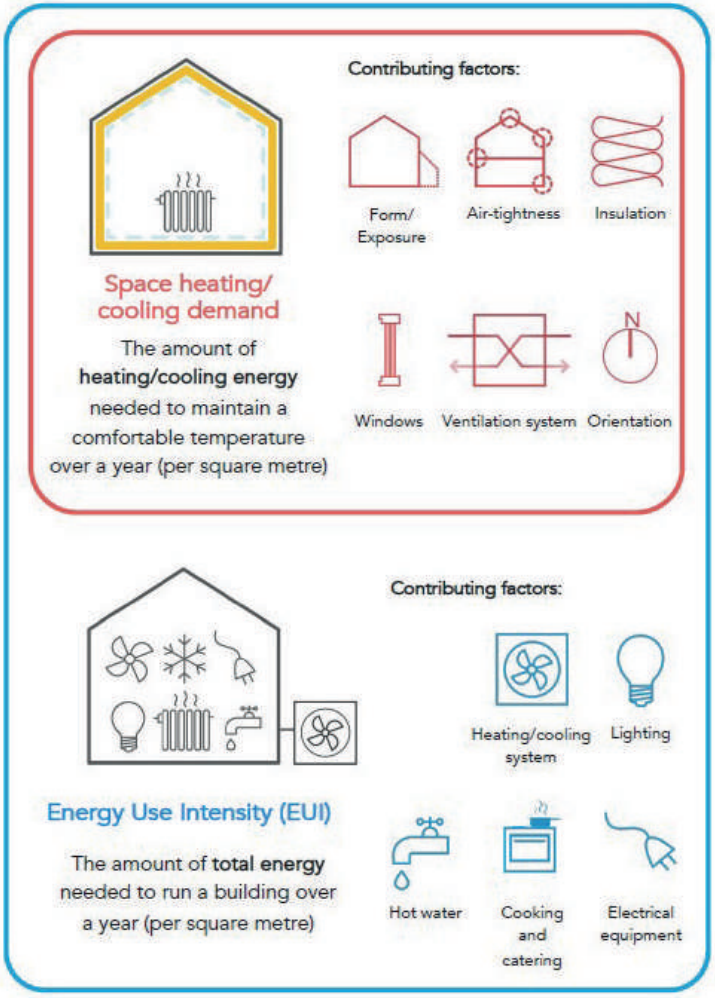
The risks of retrofit can be overcome with sensible design and well executed construction. Some key rules are:

- More insulation needs ventilation. As you add insulation you are also likely to increase airtightness. This means less air moving through the building. This can be countered with opening windows and extractor fans, but ideally by fitting a whole-house ventilation system.
- External insulation is a better option in most cases. However, if internal insulation cannot be avoided, vapour open insulation, (such as wood fibre), can be used this reduces the risk of condensation.

Overheating

Climate change is already bringing warmer summers with more extreme temperature highs. With this, alongside keeping warm in winter, overheating in the summer is becoming an increasing threat to occupants' health and wellbeing particularly for vulnerable people.

For this reason, the F&HDC NZC Toolkit recommends that all new build projects should prioritise natural methods of reducing overheating over energy-intensive technology like air conditioning. The first step is to use exterior solar shading to limit the amount of direct sunlight that enters the building. The second step is to promote natural cross ventilation to increase air circulation thereby naturally cool a building. In new buildings other measures such as 'green' walls and roofs, trees, and the landscaping will assist to keep the temperature in the immediate vicinity lower and aid in cooling our homes, but they should not be depended on.



Ventilation

When we do come to retrofit energy efficiency measures into existing council managed homes, we will be largely reliant on working closely with residents to ensure they play their part in making sure the energy efficiency measures work as well as they should.

For example, there is a myth that 'sealing up' a building to increase thermal efficiency means you can no longer open the windows. Buildings can have a Mechanical Ventilation with Heat Recovery (MVHR) unit installed. The benefit of an MVHR is that you do not have to open windows in winter for fresh air, losing heat. Residents can open windows and use the buildings normally and trust that the controls will ensure the correct temperature level is maintained.

Once a system has been properly commissioned, the controls should not need adjusting. A common issue is a lack of understanding or trust that the unit is working correctly, or a user turning off the MVHR and then it underperforms. If suitable ventilation is installed alongside a heat pump, although the heating may not appear to be as instant as it may have been previously when using a gas boiler with a thermostatic control unit, the system will be set up to keep the home at a steady temperature, however the weather fluctuates.

Carbon offsets

Until the National Grid can announce that it is NZC, organisations cannot achieve full NZC for their buildings, whether new or retrofitted. Carbon offsets can help organisations reduce greenhouse gas (GHG) emissions beyond what can be achieved through individual action. Carbon offsets 'credits' can be 'purchased' to fund projects and diminish the impact of their GHG emissions, even though the projects are located elsewhere. Carbon Offsets can be environmental and economically viable for projects where it is impossible to reduce emissions, providing funds that reduce emissions elsewhere and in so doing contributing to the overall reduction in CO2 globally.

F&HDC approach to offsetting

In the F&HDC NZC Toolkit the council set out key principles for making the necessary carbon reductions in existing and new buildings: -

Targets — should be measured in energy consumption, not carbon emissions. Buildings should meet the energy performance Key Performance Indicators (KPIs), such as EPC.

For new build, there should be no fossil fuel combustion or connection to the gas network after 2030. All new buildings should be built in line with low embodied carbon targets.

Carbon offsetting — should not be used as a mechanism for achieving compliance for new build.

Whilst F&HDC recognise the value of carbon offsetting for private individuals and organisations, we maintain that carbon offsetting should be reserved for the hardest to treat sectors.

Carbon offsetting will not be used on retrofitting energy efficiency measures in existing council managed stock.

Involving tenants and stakeholders

As well as working closely with council tenants who are undergoing retrofit measures to increase their home's energy efficiency, we will also work strategically with residents and stakeholders to scrutinise the delivery of standards, strategies and policies that affect them.

We are dedicated to the commitments within the Tenant Engagement Strategy '***Hearing our Tenants' Voice 2021-2024'*** in which we set out ways that we will improve access, support a tenant engagement culture, value diversity and inclusion, and be open, honest and respectful of residents.

Co-regulation is a key element of the housing service's vision to ensure that tenants are 'at the heart of everything we do', and it is a legislative requirement of the Regulator of Social Housing. Tenants are, and will increasingly be, involved in shaping service decisions and helping us deliver service improvement.

It is very important that we communicate and engage effectively with all tenants, including those that are working with us on our formal engagement structures and living in the homes being retrofitted, to achieve our aspiration for NZC 'in use'. The mechanisms for our communication and engagement are outlined in the Tenant Engagement Strategy.

One of the declared objectives of the housing service is that it is 'easy to do business with'. In this context the preferred method of communication with tenants will progressively be digital, maximising the website, email, text and and social media channels to improve and extend the services provided.

Electronic communication is easier, cost effective and more responsive to changing circumstances. However, where practical, each tenant will be given a choice over how they receive communication, and every effort will be made to ensure digital inclusion.

Councillors will be kept informed of all major works programmes through the annual capital programme and specifically when a contract starts in their ward.

Tenants will be involved in the NZC work programme and when work is scheduled for completion to their home. During major capital schemes, tenants will be supported by a dedicated Resident Liaison Specialist.

Creating 'ownership' of communal areas in some blocks is often difficult. Whilst the housing service is of course responsible for all cleaning and maintenance of communal areas, monitoring how the energy efficient measures are working for tenants in communal areas may be more of a challenge. Where there is interest, a 'responsible tenant' programme can be developed where a tenant(s), e.g. in a block of flats, becomes the point of contact for access and monitoring of works in communal areas. With 180 blocks of flats this could be a major undertaking but worthwhile in the future. The payment of out-of-pocket expenses may be considered through the ongoing development of the Tenant Engagement Strategy.

Delivery

The commitments of this Carbon Reduction Approach document have been incorporated into the Housing Asset Management action plan that will help to deliver the required outcomes. Progress is monitored quarterly by the Housing Leadership Team and reported to the Corporate Leadership Team through the Housing Service Plan. This document identifies what needs to be done, what the expected outcome looks like, time-frames and the officer responsible for delivering the action. The plan will link with, and inform, service plans of other directorates. Critically, it is the basis for budgets which will be agreed annually as part of the budget setting process and shared with tenants. Significant changes in the programme will be accounted for in the HRA business plan. The housing database will be at the heart of planning, recording and the delivery programme.

Members of the housing team on a site inspection

Where possible, local contractors will be used to maximise local employment, develop skills, employ apprentices and invest in the district. This may mean changes to current IT, procurement policies and financial rules to accommodate smaller contractors depending on their financial and operational capacity.

Risk management

Governance of major projects will be exercised through a risk management approach. All aspects of contract procurement and delivery will be the responsibility of individual officers. Contractors will be required to demonstrate both independent and joint approaches to quality control, in this way improving health and safety compliance and performance reporting.

Keeping data up to date

The information on the housing stock is stored in the housing management database and was updated in 2022 following completion of a stock survey. Having invested in this comprehensive survey it is important that the information is kept up to date when the following happens:

- If there are any major changes to a building's elements, e.g. new windows are installed, adaptations undertaken, room numbers change.
- If work is carried out at change of tenancy e.g. additional insulation installed.

Impact

Services will be transparent and accountable. Performance and works programmes will be published. Further opportunities will be developed for tenants to be involved in commissioning services to their homes.

The effectiveness of the work undertaken in terms of cost and resident satisfaction will be benchmarked through relevant housing benchmarking organisations, where the expectation will be to achieve excellent performance by 2025 in the following key areas:

- **Tenant satisfaction with the overall housing service**
- **Tenant ability to influence the service**
- **Value for money**
- **Progress towards achieving EPC 'C' by 2030**

The digital agenda

Being digitally enabled is part of the vision for the housing service. This approach is underpinned by the housing database that holds stock condition information. The use and maintenance of this database is critical in capturing details of new build homes, existing and future NZC work, for future asset management decisions and aiding future bids for grant funding.

Equality and diversity

The council recognises and values that individuals and communities may have specific needs which may require flexible approaches. We also appreciate that some groups or individuals may experience discrimination and disadvantage. This may be due to protected characteristics under the Equality Act 2010. We believe that everyone should be treated with dignity, respect and fairness, regardless of their characteristics.

Contractors and partners will be expected to demonstrate a similar understanding and approach to the diverse make up of our tenants.

Definitions

Biodiversity	The variety of plants and, or animals in a particular area
Carbon offsetting	The compensation for carbon emissions released into the atmosphere with activities that will absorb the equivalent amount of carbon emissions, e.g. tree planting
Climate change	Climate is the weather of a place over time. Climate change is a shift in those average conditions caused by the rise in greenhouse gases in the atmosphere particularly since the burning of fossil fuels in the industrial revaluation.
Decarbonisation	Eliminating the carbon from an activity, operation or product.
Energy Performance Certificate (EPC)	A rating system to score energy efficiency and energy affordability of a home or building. The highest level is A, the lowest G. The certificate will include recommendations on how to make a building more energy efficient and save money.
Fossil fuel	Natural fuel such as coal or gas formed from the remains of living organisms millions of years ago. Fossil fuels are NON renewable resources and are harmful to the environment because they release carbon emissions as they burn.
Global warming	Increase in the earth temperature generally due to greenhouse effects caused by the release of GHG and other products into the atmosphere.
Modern Methods of Construction (MMC)	A process for building new homes that focuses on off-site production and offers an alternative to the traditional on site delivery models. With careful planning MMC can produce less waste and less on site time, although not overall project time.
Net Zero Carbon (NZC)	A term that refers to the balance between the amounts of carbon emissions released and the amount removed from the atmosphere. Net zero is reached when the amount added is the same as the amount removed.
Photovoltaic	Technology that converts sunlight to electrical energy. Also known as solar PV panels. Used on roofs but increasingly seen in large numbers as 'solar farms'.

Renewable resources	Resources that can be reused such as wind, water, sunlight to produce power.
Section 106 (S106)	Agreements between local authorities and developers to provide affordable homes.
Sustainability	A balance between social, economic and environmental needs that ensures the needs of today do not compromise the needs of the future.
Tonnes of CO2 equivalent	The total amount of greenhouse gases emitted, not just CO2, e.g. methane, providing a single figure of emission.
Whole house retrofit	A complete approach to making homes more energy efficient. Focusing on the building's fabric of walls, roofs, window and floors as well as ventilation, heating efficiency and cooling in the summer months.

References

Housing Asset Management Strategy 2022-2027 – **https://www.folkestone-hythe.gov.uk/site-search/results/?q=Asset+Management+Strategy**

Tenant engagement strategy – **https://www.folkestone-hythe.gov.uk/media/3509/Tenant-Engagement-Strategy-2021/pdf/F&HDC_Tenant_Engagement_Strategy_2021.pdf?m=637554007526770000**

Healthier Housing Strategy – **https://www.folkestone-hythe.gov.uk/media/1102/Healthier-Housing-Strategy-2018-2023/pdf/Folkestone__Hythe_Healthier_Housing_Strategy_2018-2023.pdf?m=637544430954070000**

Future of gas boilers – Read more: **https://www.which.co.uk/news/2020/12/gas-boilers-banned-in-new-builds-from-2025-what-does-this-mean-for-you/** - Which?

F&HDC Carbon Reduction Action plan – F&HDC Net Zero Toolkit – Existing Buildings (Part 3 Retrofit)

Net zero carbon toolkit – **https://www.cotswold.gov.uk/environment/climate-action/how-to-achieve-net-zero-carbon-homes/**

Active travel – **https://www.kent.gov.uk/about-the-council/strategies-and-policies/transport-and-highways-policies/active-travel-strategy**