



Sustainable Heating Strategy

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1.0 Executive Summary

The social housing sector currently provides over four million homes to nine million customers, meaning that the sector has the potential to significantly contribute to national carbon reduction. Accordingly, Registered Housing Providers are required to comply with robust legislation stemming from the Government's Sustainable Heating Strategy that will require significant investment beyond existing asset management budgets. However, it does present the opportunity to significantly contribute to the UK's decarbonisation agenda, reduce heat demand and lower heating costs for customers whilst delivering overall stock improvements.

This strategy reviews and explains the main factors that influence Torus's strategic direction, particularly new technology, legislation and occupancy patterns and aims to assist the organisation steer an efficient path to achieving net zero carbon targets, blending retrofit and decarbonisation with existing traditional planned maintenance programmes.

It provides a guide to the available technologies and funding opportunities in relation to low carbon retrofit. Although, due to the long-term planning nature of this strategy and the rapid development of technology, approaches may differ over time due to the advancing pace of low carbon solutions.

The Asset, Strategy & Planning Team will continue to develop long term investment plans that include delivery of net zero retrofit together with a consistently reviewed approach to decarbonisation. The approach will be based on the development of new technologies with the aim to reduce the heat demand of buildings through a 'fabric first' insulation approach. It will also ensure that the investment remains affordable and within financial plans and is reactive to the changing retrofit environment.

The National Clean Growth Strategy (2017) and the Heat and Buildings Strategy (2021) aim to ensure that modern technologies reduce the cost of low carbon heating systems with the expectation that from 2035 the use of natural gas will be minimised in existing homes and eliminated from newly built homes. Existing Building Regulations ensure new homes produce 75-80% less carbon emissions than homes delivered under the old regulations which means that newly constructed homes will reach a minimum of EPC B.

However, there is currently no enacted legislation requiring the end of gas boiler usage in existing homes. Torus aims to continue to renew gas boilers until 2035 in order to assist budget flexibility and allow fabric improvement programmes to reduce heat demand in homes whilst allowing more affordable developments to low carbon heating systems. This will additionally ensure that heating costs for customers remain affordable.

As part of its review of the Decent Homes Standard, the Government will launch a consultation during 2024 which includes a focus on minimum energy efficiency standards (MEES) in the social housing sector with the aspiration that as many homes as possible reach EPC Band C by 2030 in line with the Energy Security and Net Zero Secretary's, announcement in the House of Commons.

2.0 Introduction

Decarbonisation requires a reduction in a buildings energy consumption whilst simultaneously improving the thermal insulation of buildings. However, the current Government, are yet to impose a legislative requirement for social homes to reach EPC Band C by a particular date. The previous Government's Minimum Energy Efficiency of Buildings Bill proposed a set of minimum SAP and EPC standards although did not reach a second parliamentary reading.

However, the Secretary of State for Energy Security and Net Zero has already stated that the Government would 'demand that by 2030, landlords raise the standard of their accommodation to EPC C', although, to date, there has been no official Government policy announcement.

The Clean Growth Strategy (2017) Heat and Buildings Strategy (2021) still sets out the National aspiration for:

- All fuel poor homes to be upgraded to EPC Band C by 2030
- As many homes as possible to be EPC Band C by 2035 where practical, cost-effective and affordable
- As many privately rented homes as possible to EPC Band C by 2030 where practical, cost-effective and affordable

This strategy sets out our plans to become carbon neutral by 2050, minimise our impact on the environment, mitigate the effects of climate change and end fuel poverty by improving the energy efficiency of our homes and transitioning to lower carbon heating alternatives.

It also outlines how we will sustainably retrofit homes and have a more sustainable approach to building new ones. We want to improve all our homes to reach an EPC C (SAP 69) by 2030 and ensure we reach the 2050 net zero target.

This will have significant, positive impacts. Customers will save money on bills and find it easier to keep warm in winter and improve health and wellbeing through living in a warmer home. Customers' energy bills will be lower reducing the risk of rent arrears.

To fully assess the extent of works required, SAVA Energy Analytics Team have been appointed to assess the extent of our Carbon Footprint and develop a manageable path to Zero Carbon by examining the current stock using data profiles such as age, primary heating fuel and then outlines the measures required to reach Band C by 2030, weighting the impact and cost-effectiveness of the recommended works.

All decarbonisation works will follow the PAS Framework for the retrofit of domestic buildings and delivers a 'whole- house' or 'whole building' approach which considers:

- Occupants and end users
- Each home individually (including construction)
- Complete oversight of assessment, design, delivery and use

This resolves the problems of retrofit measures being considered in isolation, as identified in the 'Each Home Counts' review, which may damage building energy efficiency overall.

3.0 Customers at the Heart of Successful Zero Carbon

Fuel Poverty in the UK is measured using the Low-Income – Low Energy Efficiency Indicator, which considers a household to be fuel poor if a home has an energy efficiency band rating below C.

Torus's aim is to achieve an EPC C for all customers whilst assisting residents to maximise their income through reducing the cost of heating and ensuring retrofit costs are not passed on to customers. Although, as with the deployment of any new technology, engagement with customers is crucial before installation to provide easily understandable and accessible information and training to avoid inefficient use, complaints and unnecessary maintenance visits.

Heat pumps will gradually replace traditional heat sources as part of dedicated retrofit projects and planned maintenance programmes. These units are designed to deliver continual background levels of comfort and control rather than the immediate rapid heat increases provided by gas and electric heating systems. This means that customers where new heating systems are installed, will need to modify their existing usage patterns and dedicated resource will be required to educate customers through the changes, how to maintain their comfort and continue to reduce energy bills through appropriate use.

PAS 2035 accredited bodies also require the following steps are evidenced as part of the retrofit procedure:

- Engagement with customers and local authorities in the retrofit process.
- Promotion of alternative heating types and fabric measures through newsletters and events.
- Highlighting cost savings, environmental impacts and improved comfort.
- Promoting how to save energy, evidencing successful transitions to encourage others.
- Providing appropriate inductions to new heating systems and installed measures.
- Use of SMART devices in homes to monitor energy use and the active management of heat.

Surveying customers' needs and usage before measures are installed and continued monitoring after installation is essential to assist customers in managing heating use and avoid issues such as excessive humidity or high fuel costs.

4.0 Leaseholders

It is critical that leaseholders are engaged early in the retrofit process and are made aware of the opportunities and cost of retrofit works at every stage.

External wall insulation will be one of the common measures installed to flats where there are both tenants and leaseholders. However, leaseholders, whilst owning the property, may be on a limited income and may also legally sub-let the property and it is essential that both the sub tenants and leaseholders are consulted at every stage of the process. Torus's leases generally do not follow standard set terms and conditions, and each lease must be assessed individually. The criteria to recharge for improvement works using the Landlord and Tenant Act 1985 (Section 20) will be used to consult and advise tenants of the potential costs in compliance with this legislation and Florries Law.

5.0 Continued use of Gas Boilers

Currently there is no legislation that requires the discontinuation of gas boilers. Torus have made the decision to continue with the installation of energy efficient A-rated boilers which will continue to achieve sufficient SAP scores to accomplish an EPC C. Continuing to use efficient gas boilers will permit both improvements to heat pump technology and fabric measure installation to progress to levels where low carbon heating can be installed in adequate numbers and improvements to the national grid will allow electrical heating systems to become more viable than they are presently.

Extending the use of gas boilers will allow the 15-year element life cycle to extend the functional time of later installations to 2050 before alternative low carbon heating is required. This will enable maximum flexibility in retrofit and cyclical programmes, easing pressure on budgets and accommodate technological advances. The effect of spreading installations in this way enables renewal programmes to be spread over more manageable periods and hence avoid a bow wave of future element replacements within a condensed period.

The proposed Future Homes Standard is expected to be implemented in 2025, changing the primary heating source for new build homes across the UK to electric, coupled with improved thermal efficiency delivered through increased insulation levels. New build homes developed by Torus will adopt the new standard and new specifications have been created in readiness, with Air Source Heat Pumps and hot water cylinders replacing gas boilers in new build houses developed during the 2024/2025 programme. Due to the smaller heating load, new build apartments may have panel heaters as an alternative to Air Source Heat Pumps, although overall, the new specifications aim to deliver Net Zero Carbon Ready homes.

Torus has a strategy of achieving EPC B ratings for all new build homes from 2025 onwards, through the delivery of Net Zero Carbon Ready homes. From 2030, EPC A ratings are desired through the delivery of Zero Carbon homes. The key change is a continued decarbonisation of the national grid, plus an increase in the installation of solar PV on new homes to reduce energy loadings to zero carbon levels.

6.0 The Key Low Carbon Heat Technologies.

Energy efficiency will be a primary consideration in all future planned maintenance programmes going forward and low carbon heating systems will be the predominant form of space heating and hot water in increasing numbers as the technology progresses. However, these systems differ significantly from traditional heating and do carry a number of advantages and disadvantages: -

Advantages of Low Carbon Technologies

- Lower carbon footprint
- Reduced requirement for annual landlord safety checks
- Low noise operation
- No boiler flues
- Reduced maintenance compared to traditional systems

Disadvantages of Low Carbon Technologies

- Potentially higher operational running costs for customers if used incorrectly
- Potentially higher electrical loads on larger developments requiring sub-stations
- Limitations in the current SAP database, i.e. electric boilers are currently not considered
- Vulnerability of externally mounted units
- Longevity of units and the availability of parts

The disadvantages over time are expected to reduce and be mitigated as the technology improves.

The following summaries outline the most predominant clean heat technologies that it is anticipated will deliver retrofit to Torus Homes: -

Heat Pumps

Heat pump technology, primarily ground and air source, is the leading viable alternative to existing gas boilers. Both types of heat pump are efficient, reliable at low temperatures and generate fewer carbon emissions. On average, a heat pump creates lower emissions of both carbon and air pollutants at the point of use and are a realistic solution and can be combined with renewable energy sources

such as solar PV. The industry aims to ensure that by 2030, heat pumps should be no more expensive to purchase and smaller, quieter, quicker to install and better suited to a diverse range of housing types. However, installation of these units does require more external space and a sufficient level of security due to the size and external location of the units.

Realistically, ground source pumps will predominantly only be suitable for communal schemes and multi occupancy developments due to the larger footprint area required to accommodate the equipment and may also require adaptations to communal service charging.

Heat Networks

There are two models of heat network, both of which supply heat and hot water from a central source to homes via a network of pipes from a central point:

- Communal Heat Networks supply heat and hot water to multiple premises within a single building.
- District Heat Networks supply heat to more than one building and can cover a larger area and supply more buildings.

Both networks have the potential to decarbonise the supply of heat to multiples of homes in high density areas and are a key part of the Government's net zero policy. Consultations on measures to empower landlords to engage in heat network zoning to designated areas are on-going with local authority partners and potentially represent a low cost, low carbon solution but will require all buildings, as well as those already heated by a communal system, to connect where it is cost-effective to do so.

Torus have been participating in Local Authority led feasibility studies to identify potential locations for Heat Network Zones and will continue to work in partnership to explore funding opportunities.

Solar Assisted Heat Pumps

Solar-assisted heat pumps combine a heat pump and thermal PV solar panels in a single integrated system. Typically, this technology is used separately to produce hot water, however in this system, the solar thermal panel performs the function of the low temperature heat source, and the heat produced is used to feed the heat pump for space heating. The goal of the system is a high energy output compared to a low energy input creating an efficient and low-cost alternative.

Electrical Boilers

Electric boilers are an increasingly viable option for homes and operate solely on electricity. They produce fewer carbon emissions compared to fossil fuel boilers, particularly when paired with solar panels. Electric Combi Boilers are fitted and in appearance, resemble gas combi boilers and provide both heating and hot water. However, these units are not yet recognised under existing SAP modelling, although expected SAP 10 reversion may credit them with the required SAP points to enable their inclusion. However, they are currently more expensive to run, use un-decarbonised mains electricity and some electric boilers may struggle to meet the demands of a larger properties.

Infra-Red Heat Panels and High Heat Retention Technology

Infra-Red units work by releasing radiation from the panel which moves through the air until it comes in to contact with an object. As the radiation is absorbed by the object, the molecules inside produce heat. This is a relatively new technology, and Infrared Heating is not currently recognised under current SAP although this may be credited in the refreshed SAP revisions. However, this technology does provide a cost effective, easily installed and maintained alternative for properties not suitable for other installations but does not provide protection against damp and mould risk therefore should be used with caution in high-risk properties.

Modern Storage Heaters

The most efficient modern storage heaters are referred to as 'high heat retention storage heaters' and are around 30% cheaper to run than traditional storage heaters. In addition to the features of other modern storage heaters, these models achieve better heat retention and are able to estimate the next day's heating demand based on user heating habits and climatic conditions.

7.0 The Approach to Retrofitting Torus Homes

A No Regrets Approach

A no regrets approach to Net Zero is defined as actions that are cost-effective now and will continue to prove beneficial in the future. The PAS 2035 approach to surveying homes and designing out potential problems enables Torus to pursue an approach to avoid issues such as damp and mould by acknowledging these problems at the design stage. Planned programmes will also need to consider homes at risk of not achieving net zero as they may have reached a point where the benefit of investment is outweighed by the cost of the improvement. Decarbonisation retrofit now straddles compliance and decency when considering investment in homes failing to achieve value for money. Disposal of some properties would generate capital receipts which will strengthen the business plan for decarbonisation of remaining units. However, selective sale will follow a clear appraisal process already contained within the asset management and investment strategy.

8.0 Alignment of Decent Homes and Retrofit Programmes

Decency, compliance and retrofit programmes will be co-ordinated to enable asset management data teams to plan dual purpose programmes to meet retrofit and decency targets and investment built in through the capital business plan.

Works will be completed on an extra-over basis where it complements dedicated retrofit programmes designed to meet the 2030 and 2050 targets and maximises funding opportunities as well as act as match funding for grant applications.

For example:

- Installation of PV (where suitable) during re-roofing works
- Installation of sustainable heating when heating systems are being replaced; and
- Installation of battery storage (where viable) during rewiring.

The approach will be carefully managed to minimise the risk of works, such as PV, completed in isolation. This may initially lower the tenants' bills, although subsequent installation of a heat pump and the switch to all electric heating may increase bills. This may have a significant repercussion as carbon funding criteria stipulates that any decarbonisation work must not result in increased costs to the tenant.

The specifications of Decent Homes items such as windows, doors, insulation, roofs, boilers and ventilation will be varied to reflect the low carbon requirements together with a no regrets approach to delivery using PAS standards and pathways to reduce the risk of replacing components before their life expectancy is reached.

This approach allows existing budgets to be maximised for both retrofit and decency, whilst allowing essential component replacement of elements unrelated to retrofit such as kitchens and bathrooms.

Retrofit works can also efficiently be completed at void stage and the decision regarding installation can be made on an individual site basis at the void inspection stage. A retrofit checklist will be formulated to accompany the void and renewal process.

Alignment of work streams will also deliver procurement efficiencies and VFM achieving a balance between costs and delivery efficiencies whilst ensuring customer inconvenience is minimised through the reduction to the number of works and visits required to a property.

Action Plans

The following illustrates the steps required to achieve a short, medium and long-term vision.

Short-Term Approach:

Archetype Modelling – High level archetype pathways establish a base line, with set targets to achieve zero carbon. The importance of zero carbon pathway modelling is critical to understand the investment decisions required including the sequence of investment based on a fabric first approach. These studies show the importance of considering each archetype on its merit and are followed by whole house and block surveys often using the PAS 2035 assessment process.

Maximise External Funding Opportunities – Optimising the Torus bidding strategy to focus on grant availability based on accurate databases, precise modelling and cost forecasting. to maximise grant funding opportunities.

Proactive Engagement and Education of Customers – Educating our customers of new technology within retrofit schemes, by encouraging behavioural change and energy saving practices through accessible formats such as videos, graphics and case studies from customers who have already benefitted from retrofit works.

Space and Domestic Hot Water Performance Specification - Renewable and low carbon technologies will be part of Torus medium to long-term asset plan to reach carbon net zero by 2050. This document outlines several space and water heating systems that can be used as part of a pre-planned programme of maintenance works or as a like for like replacement of heating system as part of the overall transition to net zero.

Aligning Decent Homes and Retrofit Programmes - Fully integrate a zero carbon 'no regrets' improvement approach which will permit capital programming to contribute significantly towards zero carbon in both the specification of products and the timing of replacement component programmes.

Continued Installation of Gas Boilers - Natural gas boilers still have a role as an efficient and cost-effective way of heating homes. We will still be able to reduce carbon emissions and increase energy efficiency by replacing older lower efficiency boilers with new, modern high efficiency condensing boilers with load compensating controls. This approach will ensure our customers do not suffer difficulties heating their homes or suffer increased costs as a result.

Boiler Replacement Where Fabric Measures in Place– Replacement of failing gas boilers where fabric measures are already in place with heat pumps and solar photovoltaic panels will ensure our customers are able to reduce heating costs.

Upgrading Heating Controls - Timers, thermostats and weather compensators manage the heating and temperature within rooms and contribute to the buildings SAP and EPC scores and will assist in properties with EPCs below C reach the required scores with minimal invasive works.

Quick Win Focus - Retrofitting existing homes for improved energy efficiency through simple measures such as window and door renewal, ventilation, upgrading fabric measures, heating controls, loft insulation and LED lighting.

Maximising Heat Pump Installation – Exploring installation opportunities at scale in independent living, sheltered and extra care schemes to achieve maximum investment opportunities.

Assess suitability of low tariff incentives and solar charging battery storage – Suitable for multi occupancy schemes to deliver economies of scale.

Medium-Term Approach

Fabric first approach – A fabric first insulation approach includes external, internal, cavity, floor and loft insulation to reduce heat lost from a home and therefore the energy required to heat it. Specification for new heating systems can then be based on less need to heat a property as it will retain more heat keeping the property warmer.

Increasing installation of heat pumps and electrical boilers – This is seen as the key future technology but is largely dependent on improvements to the fabric of a home to ensure that our customers experience minimal cost differences on heating expenditure as heat pumps installation progress. However, it is envisaged that installations will be on a phased replacement basis where traditional heating is failing and fabric measures are already in place.

Solar panels - Solar photovoltaics are well-established method of electricity generation from the sun. The systems consist of panels and inverters and can be fixed on to a roof of a building. The inverters take the electricity generated from the panels and convert it to integrate with standard electricity from the grid. The electricity generated is primarily consumed by the building it is connected to, reducing the amount of electricity that the building requires from the national grid but may also be sold back to the grid generating inward income.

Proactive collaboration with peer housing providers - Working closely with local authorities to align strategies and policies for sustainability projects. Heat Networks will only be feasible through joint working with partner authorities and peer Registered Providers

Long-Term Approach

Increase installation of solar photovoltaic panels – Predominantly a complimentary measure to reduce the costs of running heat pumps longer term.

Review the use of heat panels – These units are a comparatively new technology and not yet widely used in housing stock although they do offer a cost effective and simply installed and maintained alternative for properties not suitable for other methods.

Zero-Carbon new build programme - Ensuring all new housing developments are designed with net zero emissions.

Community Energy Projects - Investing in community-based renewable energy projects such as large-scale heat networks.

Maximise research and innovation opportunities - Development of new technologies and sustainable materials.

Promoting long term behavioural change – Growing engagement and education to ensure continuing reductions in energy waste and excessive consumption.

9.0 Action Plan

This strategy advocates a clear focus on the following key areas:

- Ensuring continually informed stock data and modelling with sufficient intelligence about heating and insulation to specify effective programmes.
- Use business plans to include additional expenditure, making assumptions about available financial support.
- Establish a dedicated framework to control costs via a network of approved contractors and installers.
- Estimate the upfront costs of installing heat pumps infrastructure.
- Setting pragmatic targets for heating replacement based on current and expected SAP performance.

- Develop and implement a structured reporting framework for progress towards net zero.
- Work with key stakeholders to address skills shortages and build the supply chain to achieve long term cost reductions.
- Explore financing options, grants, and incentives available for renewable energy projects.
- Analyse the impact on the economic performance for properties and identify candidates for disposal or redevelopment.
- Design maintenance guidance to help drive down on-costs.
- Develop area-based approaches and investment programmes at scale.
- Commence consultation programmes with residents and stakeholders and take action to address the lack of understanding of decarbonisation amongst customers and stakeholders.
- Collaborate with other registered providers, Combined Authorities to achieve economies of scale and area-based programmes.

10.0 Methodology and Funding

National Decarbonisation policy has emphasised affordability in the transition to low-carbon heating, with importance placed on cost reductions of at least 25 - 50% by 2025 and cost parity with gas boilers by 2030, stipulating that customers should not bear the cost of changing to greener heat sources.

In line with this guidance, Torus aims to maximise funding opportunities to integrate with planned maintenance schedules, conduct detailed assessments of all current stock below EPC C and establish a priority system and planned expenditure requirements. In addition, a review of planned and capital maintenance programs will be undertaken as grant applications can require at least 50% match funding from capital resources and combining capital works, or planned maintenance commitments with grant funding will ensure resources are maximised.

The use of archetype modelling will offer an objective overview of our homes and are an essential, cost-effective method of assessing the required levels of funding able to identify stock where design decisions can measure baseline dwelling performance against retrofit measure performance. From this, design assumptions can be modelled providing a clear understanding of the scale of work and funding required.

Cost scenarios show that it is possible to raise additional borrowing to cover a proportion of the costs with the availability of grant, there could be a requirement for Finance Teams to look at models that include:

- VAT concessions on energy efficiency measures.
- Government guarantees on borrowing for retrofit.
- The availability of future grants to help with the costs of retrofit.
- Review of accounting practices for costing decarbonisation.
- Look at borrowing covenants with lenders.

Retrofitting heat pumps to homes will require a of a range of additional costs to the heat pump itself such as the upgrade of existing heating systems, additional security for the equipment and the availability of external space and this will increase costs beyond initial expectations.

11.0 Current Barriers to Retrofitting Torus Homes

In September 2023, the previous Government announced it would exempt homes that are not suitable for heat pumps or other low carbon heating. Homes fitting these criteria could include those requiring energy efficiency or electrical connection upgrades, lacking space for a heat pump, or located in zones likely to be connected to a heat network. It also expects that residents of these exempted homes are not unfairly penalised and have announced plans to consult during 2024 on alternative options for homes unsuitable for low temperature heat pumps. In addition, as the need for new social housing increases and net-zero being a non-negotiable requirement, the opportunity for net-zero carbon construction will become essential and new properties will need to be built with

carbon neutrality foremost and with the ability to adapt to newer technology as it appears. The Future Homes Standard aims to improve how new homes are built ensuring a reduced carbon footprint through the follow key requirements: -

- New homes will no longer be heated with fossil fuels.
- A proposed “Future Homes brand” for new homes that meet specified standards, ensuring developers deliver promised energy performance.
- Use of a proposed Home Energy Model, a more accurate way of modelling a building’s energy performance, which recognises integrating smart technologies, energy storage solutions, and encourages innovative strategies for enhancing existing housing stock.

However, in late 2023 the House of Commons Business, Energy and Industrial Strategy Committee stated that at the current pace of change, the UK is set to fail to hit its target of decarbonising the power sector by 2035. This in turn will fundamentally undermine the contribution to net zero of properties built to Future Homes Standards and emphasizes the contribution of retrofitted properties.

12.0 Conclusion and Recommendations

This Strategy together with a realistic delivery plan as a result of the net zero planning completed with SAVA, review of standards and specifications and property archetype modelling, will make a significant contribution towards reducing the CO₂ from Torus housing stock and achieving the statutory targets.

Archetype studies and individual property assessments provide a blueprint to guide investment over the following decades and inform customers of the changes their homes are likely to undergo. This will make the fuel switch away from fossil fuels affordable to customers and as data and technology improve so strategy and delivery will adapt to reflect the changing environment.

External factors such as the revised Decent Homes Standard and revisions to Standard Energy Assessment Process (SAP 10), due for release in late 2024, may influence future strategies together with utilising full SAP methodology to enable us to develop a clearly defined roadmap to meet targets.

Hydrogen does not currently play a leading role in this strategy although it can be acknowledged, it may be a bridge fuel on the road toward decarbonisation, but it is not yet ready for significant usage. The cost, in terms of price and greenhouse gas emissions, to create hydrogen, renders it impractical in the short term for heating domestic dwellings. Future technology and investment in infrastructure could allow hydrogen to become a long-term tool in the transition toward net zero.

Skill gaps could also play a significant role in retrofit, and it is essential that Torus and our key stakeholders possess the necessary retrofit skills and competencies, not just for installation but also for maintaining the technology into the future. There is a pressing requirement to increase Torus’s technical capability and knowledge base within the association and that partners, specifications and contracts also reflect these capabilities.

APPENDIX 1: CHRONOLOGY

The following timeline sets out the chronological steps to:

Present to 2030 (SAP C Targets)

- Detailed stock archotyping
- Model bespoke plans that aim to make all stock EPC C by 2030
- Feasibility studies to identify an achievable a programme of measures
- Maximise external funding opportunities to introduce Low Carbon Heating (Blending Funding)
- Highlighting where deeper retrofit measures are required when properties become void
- Target fabric first insulation of low carbon heating where fabric measures are already applied
- Align lettings and void strategies with retrofit strategy and achieving EPC C
- Use of Improvement Option Evaluations and Medium-Term Plans
- Continued use of Gas Boilers to 2035
- Ensure Torus is equipped with the practical and strategic expertise to deliver decarbonisation heating programmes, upskilling and recruitment of retrofit qualified professionals including installation and maintenance.
- Deploy on site technology such as smart monitoring devices
- Establish monitoring procedures to measure progress against targets
- Explore partnerships with local providers and academia to contribute to feasibility studies, access funding, maximise procurement and plan retrofit programmes and resources.
- Create links with locally based academic institutions at the forefront of insights and education into sustainability research, green building, retrofitting of homes and environmental research.
- Aligning standards, specifications & schedules to include innovations, new retrofit products
- Plan to integrate energy efficiency improvements with regular capital replacement work.

2030 – 2035

- Develop a formal customer consultation and engagement strategy to maximise installations of new technology and ensure access to funding support by identifying the best tariffs
- Retrofit projects focused on fabric measures to ensure future clean heat technologies will operate at their most efficient and affordable to the customer
- Review newer technologies, engage with manufacturers, innovators and education bodies to explore technological developments
- Trial heat pumps in homes where the highest possible energy improvement gains and identify properties suitable for heat pump installation using current electricity and gas prices - possibly off-gas properties which have good fabric insulation
- Develop a customer engagement strategy, consulting with our customers to maximise installations of new technology and ensure access to funding support by identifying the best tariffs
- Establish cost savings to reduce maintenance costs, reduce voids, as well as potential added asset value
- Confirm any retrofitted homes achieve the efficiency to design specification

2035 - 2050

- Target annual deep retrofit programmes and increase levels across remaining stock.
- Consider an Energy Service Company to benefit from solar panels, battery storage and new technologies as this may increase value for money and give more control over the price of the electricity.
- Review battery storage technologies and future demands of customers including appliances, electric vehicle charging, non-traditional working hours etc.

APPENDIX 2: KEY COMPLIANCE DATES

Key Compliance Dates

- 2025** - Heat Network Transformation Programme (growing the market for heat networks)
- 2025** - Introduction of heat network zones in England.
- 2025** - Future Homes Standard introduced
- 2025** - No new homes connected to the gas grid
- 2025** - As many fuel-poor homes as is reasonably practicable improved to EPC D
- 2025** - Government to work with industry to reduce cost of heat pumps by at least 50%
- 2026** - No new fossil fuel heating systems will be installed in off-gas grid homes
- 2028** - A minimum of 600,000 heat pumps installed in homes each year
- 2028** - All private rented sector homes are made EPC C
- 2030** - All social housing homes to reach EPC C
- 2030** - Fuel-poor hard to decarbonise homes where reasonably practicable reach EPC C
- 2030** - Heat pumps reach cost parity with boilers
- 2030** - As many homes as possible achieve EPC C were cost-effective and affordable
- 2030** - Heat Networks, switching district heating networks to low carbon sources
- 2035** - Phase out the installation of new natural gas boilers
- 2035** - Low carbon heating technologies deployed at scale across all buildings
- 2050** - Homes meet a net zero energy performance standard where cost-effective, practical and affordable

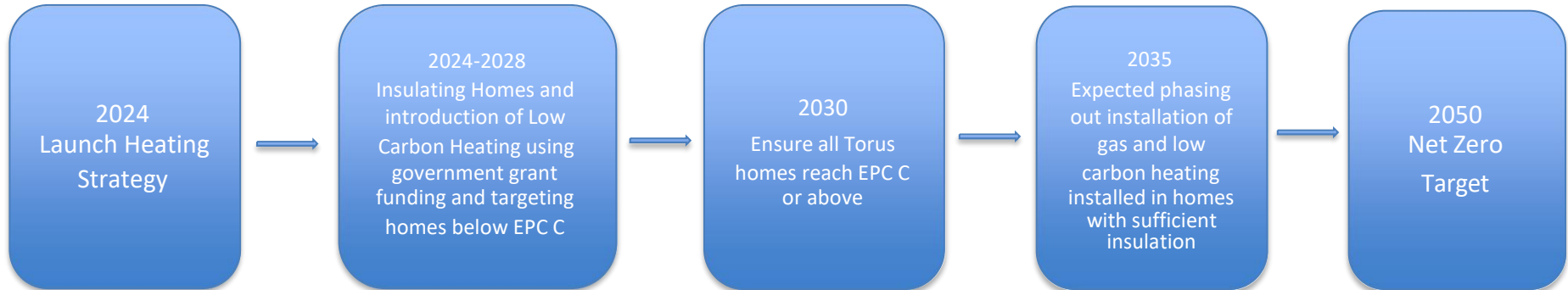


Sustainable Heating Strategy 2024

Gary Howard –Complex Projects Manager

What is the Heating Strategy?

- Our [Sustainable Heating Strategy 2024](#) sets out Torus plans for all our properties to reach EPC Band C by 2030 and our homes becoming carbon neutral by 2050.
- The strategy further sets out our Action Plan to sustainably achieve these aims by insulating homes to reduce their demand for heating and the installation of low carbon heating systems that are more sustainable to use and cheaper to run.
- We also highlight the current legislation, practices and options available for improving the energy efficiency of customer's home.
- **Retrofit Timeline**



Why is a Heating Strategy Needed?

- To help to create sustainable and energy efficient homes
- Decarbonise our properties and ensure that our objectives for homes to achieve key targets are achieved
- Ensure alternatives to gas boilers are considered and utilised in homes where suitable
- To plan how we will make the changes to improve insulation and heating to homes as part of our improvement programmes

How Will We Create Sustainable and Energy-Efficient Homes

- Take a 'Fabric First Approach' to insulating homes to make sure less heating is needed
- Make sure that all new homes reach EPC Band A and existing homes reach EPC B and C
- Take a 'no regrets' approach to how we plan these works for the long term
- Make sure our planned maintenance programmes and retrofit programmes work together

How Will We Prevent Damp and Mould in Homes

- Make sure that our homes are adequately heated and ventilated
- Manage out unintended consequences by following the PAS2035 process

How Will We Engage With Our Customers

We Will:-

- Create a dedicated Customer Engagement Strategy for each retrofit scheme
- Ensure that each home has an individual retrofit assessment and improvement options are discussed and agreed
- Ensure that each home has access to appropriate retrofit advice based upon individual household needs
- Household needs will be considered throughout each project
- Ensure inconvenience for customers is kept to a minimum during installation works
- Ensure we promote and provide opportunity to educate customers on retrofitting and decarbonising homes
- Consider all options for low carbon heating to ensure that each home is heated with the most suitable system
- Ensure that appropriate new technologies are utilised when they become available

The Key Recommended Low Carbon Heat Technologies

Heat Pumps - Ground and Air Source

Heat Networks

Solar Assisted Heat Pumps

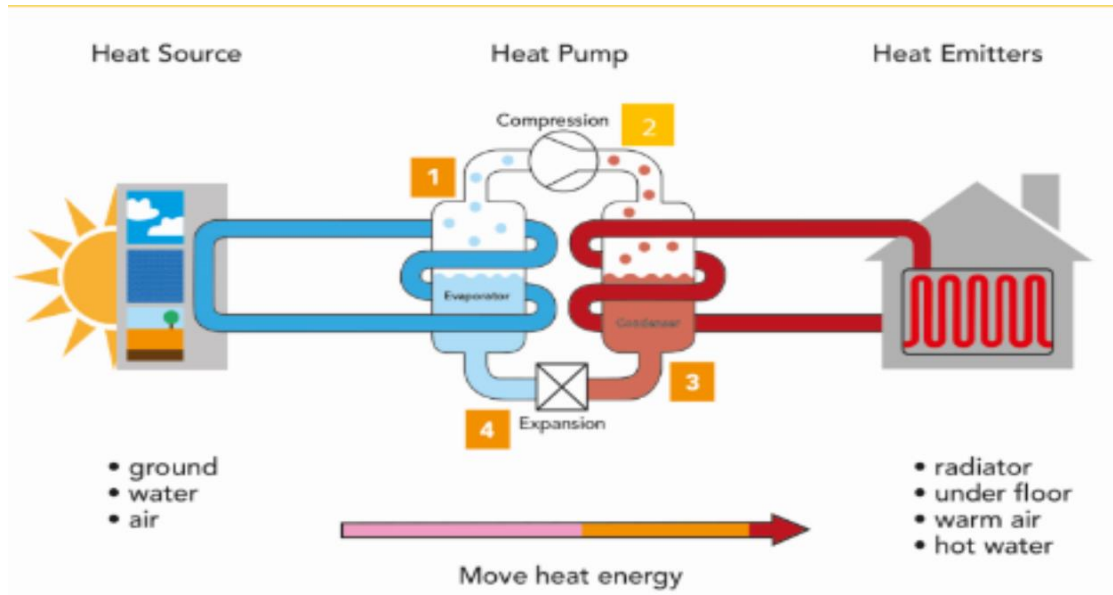
Electrical Boilers

Infra-Red Heat Panels and High Heat Retention Technology

Modern Storage Heaters

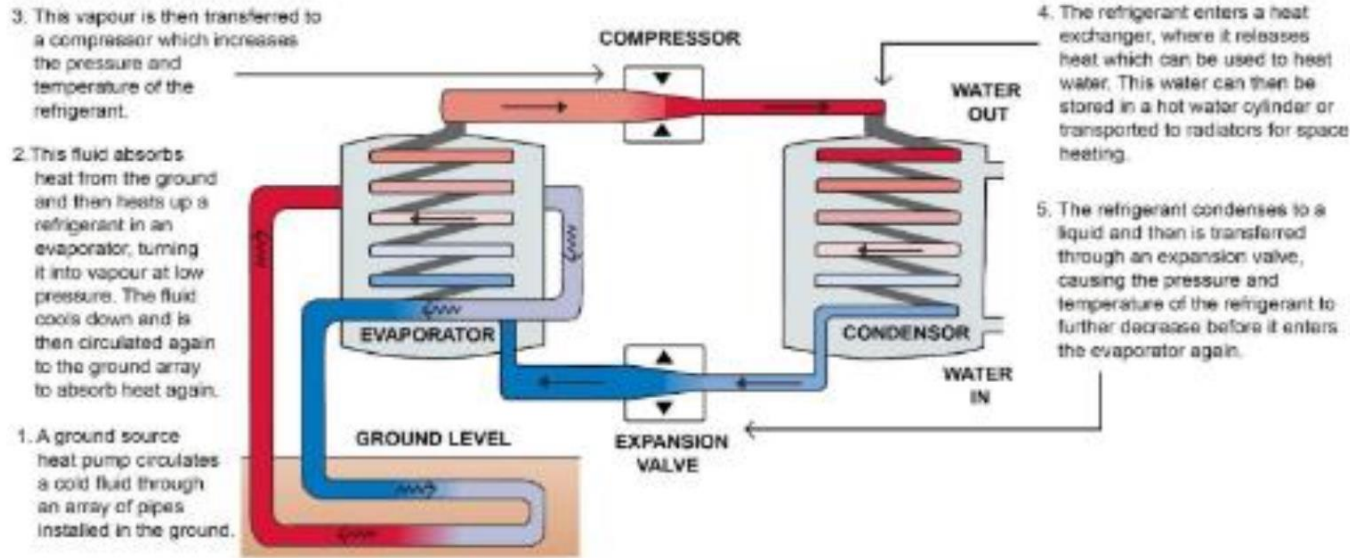
How do Air Source Heat Pumps Work (ASHP)

Heat pumps are very efficient compared to older heating systems as the amount of heat produced is more than the electricity used and in the long term, may be one of the best solutions for most Torus Homes .



How do Ground Source Heat Pumps (GSHP) work

Ground source heat pumps extract heat from the ground to provide heating and hot water. Heat from the ground is contained in a loop of pipe which is buried in a shallow trench or a borehole. These pumps are a viable alternative to traditional heating for large communal developments.



Insulation Measures

Typical Retrofit Insulation measures include:

- Loft insulation
- Internal wall insulation
- External wall insulation
- Cavity wall insulation
- Under floor insulation
- High-performance windows and doors (double or triple glazed)
- Improved ventilation (mechanical and natural)
- Reducing draughts, around ceilings, pipework, windows and doors

A Cautious Approach

While heat pump installation will be one of the main alternatives to gas heating going forward, in the current energy market, it could drive up a home's electricity usage and struggle in drafty, poorly insulated dwellings. We recommend a cautious approach to installation for the following reasons:

- Heat pump technology is quickly improving
- Costs are reducing
- Potentially higher operational running costs for customers if used incorrectly
- Potentially higher electrical loads on larger developments requiring sub-stations
- Restrictions and vulnerability of externally mounted units
- Longevity of units and the availability of parts

What Do We Need To Do Now?

- Carry out detailed stock archotyping to understand which properties will need which measures
- Continue to develop improvement plans aimed at meeting key targets by modelling energy data using our energy efficiency software
- Maximise external funding opportunities to insulate homes and introduce low carbon heating
- Target installation of low carbon heating where fabric measures are already installed
- Integrate retrofit improvements with regular capital replacement programmes
- Align Lettings and Void Strategies with The Sustainable Heating Strategy to achieve EPC C
- Highlight where deeper retrofit measures are required when properties become void
- Continue utilise gas boilers to 2035 where appropriate
- Align, specifications & schedules to include innovations and sustainable heating products
- Remain adaptable and aware of developments to ensure we maximise new technologies and avoid short term solutions

Anticipating Government Policy

Sir Keir Starmer has set out the Labour Governments approach to British Energy including fully decarbonising the power system by 2030 by:-

- Rapid deployment of renewables and other low-carbon technologies which will assist in achieving EPC C more rapidly
- Creation of GB Energy – One of Labour's key election pledges which aims to bring energy generation back into public hands and prevent price inflation by the private sector. This would ensure that heating such as air source heat pumps become more financially viable to run in homes
- Energy Retail – Imposing an energy price cap to reduce fuel poverty
- Accelerating the Energy Transition – Through a job creation and investment in retrofit and decarbonisation.
- Windfall tax on oil and gas companies – Used to finance clean energy installation and encourage use of renewables

Questions?



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