OXFORDSHIRE
GROWTH BOARD

To:	**Oxfordshire Growth Board**
Title of Report:	**Zero Carbon Housing**
Date:	**11 March 2020**
Report of:	**Growth Board Executive Officer Group**
Status:	**Public**

Executive Summary and Purpose:

Decarbonisation of housing will be essential to achieving the UK's target of net zero carbon emissions by 2050. Whilst the Oxfordshire Energy Strategy, endorsed by the Growth Board, acknowledges the wider challenge of retrofitting existing homes, ensuring that new homes are built to zero carbon as quickly as possible will assist in achieving this goal and avoiding costs and disruption of retrofitting homes in future. The Growth Board's Housing Advisory Sub Group has considered emerging best practice and the challenges local authorities face in promoting and encouraging net-zero carbon development.

This paper provides a summary of those areas of consideration and proposes draft recommendations as to how the Growth Board could support this agenda. It is intended that the recommendations emerging from this report should be refined with input from the Growth Board Scrutiny Panel and following discussion at the Growth Board.

Recommendations:
That the Growth Board consider the report and the draft recommendations set out in section 5 of this report, summarised below:

That Growth Board partners:

a) Make the case to Government for clear and ambitious national standards that set a long term trajectory for minimum standards to 2050 accompanied by investment and incentives for local authorities and developers to move more quickly to higher standards.
b) Champion the exchange of good practice and guidance on sustainable and zero-carbon construction, to promote uptake and set local expectations
c) Explore opportunities to scale up low carbon technologies through Modern Methods of Construction (MMC) and work with Homes England and developers to develop a pipeline of sites for MMC.
d) Include higher design standards as an objective of the Oxfordshire Plan 2050 as the earliest opportunity to achieve weight in the planning system and consider what can be done in advance of the Plan to set higher expectations of standards (for example through shared evidence base for local plans and guidance).
e) Make the case to Government for sustained incentives, investment guidance and support for local retrofit programmes for existing homes

f) Support public facing campaigns that raise awareness of what households can do to reduce energy consumption in their own homes, the benefits of energy efficient homes and lifestyle adaptations to make them most effective.

Introduction

1. In June 2019, the UK government committed to a target of achieving net zero carbon emissions across all sectors of the economy by 2050. This is a significant increase on the previous commitment of 80% reduction in carbon emissions and given that the Committee on Climate Change (CCC) currently predicts that the UK will not achieve current carbon reduction targets, will require significant national policy intervention. The CCC identified that the legally binding commitments will not be achieved without the near-complete elimination of greenhouse gas emissions from UK buildings. The CCC identified that progress made on buildings remains insufficient even to meet the previous target for an 80% reduction in emissions relative to 1990 levels and concluded that meeting the net-zero ambitions, will require bold and decisive action and clear leadership from government.

2. Oxfordshire authorities have all declared a Climate Emergency and in response are developing plans for how they will achieve a target of net-zero carbon. This sits alongside the Oxfordshire Energy Strategy, endorsed by the Growth Board, which sets an ambition to achieve net zero by 2050 or sooner. Given that domestic emissions accounts for 24% of carbon emissions in Oxfordshire, improving energy efficiency and de-carbonising homes – both new and existing - is critical in meeting this challenge.

3. Approximately 80% of the housing that will exist in Oxfordshire in 2031 (according to Local Plans) has already been built, so addressing carbon emissions from existing stock is arguably the bigger challenge. The Oxfordshire Energy Strategy identifies that about 4,000 current homes per annum would need to be retrofitted to help us meet our 2050 ambitions and the need to build a clear routemap to achieve this. This will require significant intervention and investment from government to enable large scale local retrofit programmes. But there are also plans for significant housing development across Oxfordshire and a strong case for ensuring that this housing is built to high energy efficiency standards and achieves net-zero carbon as quickly as possible.

4. The definition of a net-zero carbon home generally refers to the construction and the ongoing running and maintenance of the home. But it is not just a matter of the carbon performance of the homes themselves. To be genuinely net-zero carbon, new developments need to be supported by transport and green infrastructure that facilitates a reduction in carbon emissions and carbon offset measures. These are important issues that need to be addressed through local plan policies and transport and infrastructure plans and energy strategies. This paper recognises that wider context but does not seek to cover the range of extensive work being undertaken by Oxfordshire authorities and partners in working towards zero-carbon. Rather it is focused

on challenges and opportunities for scaling up development of net-zero carbon homes.

Benefits of Net-Zero Carbon Homes

5. Housing constructed today will still be in use by 2050 and therefore will need to achieve standards to reflect the net-zero carbon ambition either now or through transitional plans. There is currently an additional cost to building homes to net-zero carbon standards, but in the long term, these are offset by lower running costs of energy efficient homes and are considerably lower than the costs of retrofitting properties at a later stage. Costs of retrofit vary considerably depending on condition and type of housing. The CCC report UK Housing Fit for the Future suggests average retrofit costs of about £40,000 per house but a retrofit pilot for Nottingham City Homes reported costs of £80,000 per home.

6. Energy efficient homes also deliver health and quality of life benefits to residents in terms of lower energy bills which can help tackle fuel poverty and lead to reduction in rent arrears and voids. If designed as part of sustainable developments that promote active travel and greenspace they also deliver health benefits to residents.

Challenges to Delivery of Net-Zero Carbon Homes

Policy and Regulation

7. Energy and carbon efficiency requirements are set out in Building Regulations with current standards and last updated in 2013. In 2008 government passed legislation that would have required all new homes to be zero carbon by 2016. However this was dropped in 2015 as a result of concerns about the impact on housing delivery. In general therefore, the housebuilding industry has not yet been required to gear up to deliver to zero carbon standards.

8. There has been a lack of clarity about Local Authorities flexibility to set standards at a higher level than Building Regulations. The Planning and Energy Act 2008 does allow local planning authorities to set and apply policies for higher standards in their local plans. However, in 2015, the then government set out in a Written Ministerial Statement its expectation that local planning authorities should not set energy efficiency standards for new homes higher than the energy requirements of Level 4 of the Code for Sustainable Homes (equivalent to a 19% improvement on the Part L 2013 standard). Section 43 of the Deregulation Act 2015 introduces an amendment to the Planning and Energy Act that restricts local authorities setting energy standards above Building Regulations for new homes, but this amendment has not come into effect.

9. Government confirmed alongside the revised NPPF in 2018 that the flexibility for local authorities to set higher standards exists, however this is subject to testing against deliverability, affordability and viability of the plan as whole. Under the NPPF, local authorities are also required to meet the housing delivery test and given that the industry is not currently geared up to deliver

net-zero carbon at scale, this effectively constrains councils' ability to require net-zero carbon.

10. In response to the recommendations of the CCC, government has recently consulted on the Future Homes Standard. This is the first stage of a two-part consultation proposing revised energy efficiency standards for future homes through changes to the Building Regulations. The first stage of the consultation specifically concerns the interim measures to be applied to new homes between 2020 – 2025; future consultations will consider the requirements of the standard from 2025 both for homes and commercial buildings. Whilst the consultation proposes higher energy efficiency standards for new homes, it does not go as far as requiring zero carbon. In order to prevent the need for future retrofit, the focus of revised standards should be on fabric efficiency (i.e. triple glazing and minimal heat loss from walls, ceilings and roofs) to minimise the energy requirements of dwellings. Instead the Government's preferred option for the interim phase focusses on the use of 'carbon-saving technology' such as photovoltaic (solar) panels.

11. The consultation document also proposes removing councils' ability to set higher standards locally. Whilst there are strong arguments for high national standards which ensure consistency and certainty for the industry and avoid protracted negotiations through the planning process to determine whether locally set standards are viable for individual developments, many authorities are concerned that if national standards are not ambitious enough, the removal of the ability to set local standards will block councils' ability to achieve local carbon reduction commitments.

Industry capacity, skills and expertise

12. In general, the housebuilding industry works to the required minimum standards. As a result most housebuilders are not geared up to build to higher fabric specifications and there are insufficient supply chains, trained installers and product availability to allow them to do so. This is recognised by the CCC, for example in the case of heat pumps: *"it is not feasible to ramp up installation rates of heat pumps straight away to the current level of gas boiler sales (over a million per year) from the current level of 20,000 per year, not only due to the lack of market development but also because there are not enough qualified heat pump installers".*[1]

13. The Future Homes Standard consultation paper recognises that there is a need to address these gaps in design and construction skills, supply and installation of new technologies. The document also states that Government is working with industry and suppliers to ensure that they are able to respond to the emerging skills needs of the construction sector, including skills for sustainable construction and for improving energy efficiency. However, more could be done by government; setting out a clear, defined, long term trajectory showing increased minimum standards to 2050 would help to provide market stability by enabling long term investment choices and decisions to be made.

[1] Net Zero – The UK's contribution to stopping global warming, CCC (2019) https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/

14. Government support and funding for local initiatives to address supply chain constraints is also needed. A relevant government-funded project which is beginning to address the skills and industry capacity challenge in relation to retrofit is currently underway in Oxfordshire. Led by the Low Carbon Hub, an award-winning Oxford-based social enterprise and Community Interest Company. *Cosy Homes Oxfordshire* is a home retrofit project launched in early 2019 to help make homes across Oxfordshire more energy efficient. Aimed at the 'able to pay' sector, the project is working with low carbon community groups to encourage uptake locally. The project aims to develop a supply chain and 'trusted providers' and is billed as a 'one-stop shop' for home retrofit services and is designed to support the homeowner throughout their project.

Performance and compliance

15. With large development there is frequently a time lag between application for planning or building control and delivery on site. This means that in some cases new homes are built to out of date standards. The Future Homes consultation proposes changes to the transitional arrangements that would result in the latest building standards having a more immediate effect.

16. In addition, the CCC identified that the way new homes are built often falls short of stated design standards. The CCC has identified closing the energy use performance gap as the biggest opportunity to reduce carbon emissions in the short term and estimated that it could save between £70 and £260 in energy per household per year. The Future Homes Standard consultation proposes new technical guidance on build quality and new reporting requirements to address this performance gap.

Finance and funding.

17. The CCC also identified that there are urgent funding gaps which must be addressed. These include securing UK Government funding for low-carbon sources of heating beyond 2021, and better resources for local authorities.

Costs and impact on viability

18. Costs of delivering net zero carbon housing vary across the country depending on the type of site and local construction costs. Initial uplift in costs for developers reduce down as more houses were built and employees upskilled. A Passivhaus Trust report from 2015 suggested that building to Passivhaus standards involved an increase in costs of 15-20% over and above Code for Sustainable Homes 4[2]. A more recent report from Passivhaus Trust in 2019 finds that current best practice is at 9% additional cost[3]. A recent study commissioned by the County Council to inform the Oxfordshire Cotswold Garden Village evidence base indicates that costs of meeting a true net-zero carbon development are in the range of 7 to 11%. The increase in

[2] Passivhaus Capital Cost Research Project
http://www.passivhaustrust.org.uk/UserFiles/File/Technical%20Papers/150128%20PH%20Capital%20Costs.pdf
[3] Passivhaus Contruction Costs (2019)
http://passivhaustrust.org.uk/UserFiles/File/research%20papers/Costs/2019.10_Passivhaus%20Costs(1).pdf

costs to provide enhanced fabric efficiency are relatively low at around 2% above a current standard built home. Use of heat pumps and mechanical ventilation and heat recovery systems add 4% to baseline costs, whilst the addition of solar PV adds up to 5%. It is expected that these costs to come down over time as the market develops and technology matures.

19. Developing to highly energy efficient standards has lower life time costs as additional costs will be offset in the longer term by avoiding the need to retrofit and lower energy bills. However, to date low/zero carbon homes have not been perceived as a customer benefit so have not commanded a premium in the market. Additional construction costs borne by the developer are not recouped through sales and have therefore not provided an incentive to developers to implement higher standards. Similarly for landlords, both private and social, the additional costs are borne by the landlord whilst benefits of lower running costs accrue to the tenants.

20. Additional costs of building to net-zero carbon standards therefore present challenges to local authorities in terms of trade-offs for supply and affordability. This is particularly the case in areas of high housing demand and affordability challenges like Oxfordshire. This tension was recognised by Oxford's Citizens Assembly which fully supported building new homes to zero carbon standards but expressed concern that this should not come at the expense of delivering more affordable homes to meet housing needs.

21. In the longer term, as consumer demand and regulation lead to an increase in the scale of net-zero carbon developments and the industry develops the skills and capacity, costs should reduce over time which should help address these tensions; however it does present a barrier to early adopters.

22. The 'allowable solutions' / 'offset' model that underpins the delivery of net-zero carbon developments attempts to moderate and give certainty to the additional costs of reaching zero. This model allows developers to offset carbon emissions which cannot be cost-effectively dealt with onsite through contribution to a local authority fund to deliver carbon reduction offsite. The challenge for local planning policies is how to allow for this type of approach whilst ensuring that developers are incentivised to prioritise and develop capability for on-site carbon reduction. The Oxfordshire Plan 2050 provides an opportunity to explore a strategic Oxfordshire approach to policies that balance provisions for offset with scaling up onsite carbon reduction.

Liveability

23. Living in Passivhaus or zero carbon homes also requires residents to adapt to a different way of living. They rely on a high degree of air tightness and heat pumps which some residents have found difficult to get used to. Evidence from demonstrator projects have highlighted the importance of education and advice to residents on how to use their new homes in achieving zero carbon performance.

Opportunities and progress

24. Despite these challenges, all of the Oxfordshire authorities are exploring ways and levers available to them to promote and support improved carbon efficiency of new homes, learning from experience to date and opportunities provided by planned housing development to scale up delivery of net-zero carbon homes.

Planning

- Oxford City Council's Draft Local Plan sets a trajectory for requiring all new build housing to be net-zero carbon by 2030, with an immediate requirement for 40% reduction in carbon emissions over and above current building regulation requirements, rising to 50% in 2026. This was tested as part of the Local Plan process to be viable alongside a 50% affordable housing requirement. The Draft Local Plan includes a range of other policies to support the City Council's journey to zero carbon, for example policies to reduce the use of private cars in new developments within reasonable distance of amenities and public transport.
- Cherwell District Council's Adopted Local Plan contains policies for ensuring sustainable development including for climate change adaptation and mitigation, energy hierarchy and allowable solutions, sustainable construction, decentralised and renewable energy.
- The Ecotown policy at NW Bicester, supported by the Supplementary Planning Document encourages all development to incorporate sustainable design and construction technology to achieve zero carbon development (subject to viability). Additionally, a net increase in biodiversity is required across the site.
- Cherwell District Council have also provided the opportunity in it's planning policy for testing a plethora of construction techniques, materials and approaches to sustainable living at the Gravel Hill self-build site, just south of Bicester, with ten pioneers featured across *Grand Designs 'The Street'*.
- Vale of White Horse District Council's adopted Local Plan encourages developers to incorporate climate change adaptation and design measures to combat the effect of changing weather patterns in all new development. It includes criteria such as design to reduce solar heat gain, using materials to prevent penetration of heat, such as green roofs, increasing natural ventilation etc. It has a policy on water consumption which is above standard building regulations. The plan also encourages schemes for renewable and low carbon energy generation.
- The Draft South Oxfordshire Local Plan contains policies requiring new development to seek to minimise carbon and energy impacts. The Plan also encourages schemes for renewable and low carbon energy generation.

Working with developers and industry

25. Oxfordshire local authorities are also engaging with developers and working on policies and guidance to encourage private developers, landowners and investors to invest in low and zero carbon homes. For example:

- Building on their experience of Passivhaus development, Cherwell District Council are working on a policy to encourage private developers to follow suit. Cherwell District Council have been the lead delivery partner in the creation of

a countywide member-based business network, Oxfordshire Greentech, to bring collaboration, knowledge transfer and innovation to a range of 'special interest groups', including the built environment, to ensure the Oxfordshire's economy continues to grow, but in a sustainable way. Having launched in February 2019, Oxfordshire Greentech now has 100 members and growing, and provides a key link with industry and local authorities (as well as working closely with OxLEP and the Low Carbon Hub). Its annual conference "Powering the Clean Growth Era" will be held at the Said Business School in Oxford on 18th March 2020.

- West Oxfordshire are working within the Publica partnership (WODC, Cotswold, Forest of Dean) to develop guidance for developers of new homes and refurbishment of existing stock.
- South Oxfordshire and the Vale of White Horse are undertaking a joint design guide for developers which will include encouragement of sustainable construction.
- Oxford City Council is working with developers and the University to work towards higher standards. The University has had their first Passivhaus accredited building at Kellogg College and combined heat and power at Summertown House. The City Council is working with them to embed carbon reduction in their future projects.

26. Oxfordshire partners are exploring opportunities to scale up low carbon technologies through Modern Methods of Construction (MMC) which have the potential to bring down the costs and scale up delivery of highly energy efficient homes. The Oxfordshire Housing and Growth Deal included a specific ambition to promote modular build housing in Oxfordshire. Initial discussions and a field visit has been held with Building Research Establishment (BRE), the national centre of excellence for R&D and knowledge exchange in the built environment to understand what innovation in modular development is being introduced into the market and how it may be applied in Oxfordshire.

27. Homes England has a specific remit to boost modular development, along with other modern methods of construction, in the UK and is investing in partnerships with manufacturers of modular homes such as the £30 million investment they have made to help bring Sekisui House into the UK housing market, in partnership with Urban Splash. Homes England have also been running the Local Authority Accelerated Construction program providing support for Local Authorities to develop using MMC on their land. One of the critical restrictions on developing Modular and other MMC projects is developing a pipeline of opportunities of sufficient scale to justify firms' investment in this technology. Discussions with BRE and Homes England have suggested that initially a pipeline of at least 200 units per year in Oxfordshire would help support the development and expansion of MMC production facilities.

28. OXLEP are also supporting engagement with industry partners and its Clean Growth Sub-Group are planning a series of events in 2020 with Constructing Excellence Oxford and Oxford Brookes University designed to identify and share best practice in innovation in sustainable construction. This is in

addition to a number of construction industry events which have already been hosted in Oxfordshire.

Case studies and demonstrator projects

29. There are examples of Zero Carbon developments in Oxfordshire. Elmsbrook in Bicester will see the development of 360 homes in a net-zero carbon development and has also delivered the Eco Business Centre, built to Passivhaus Plus standard, which is currently Oxfordshire's most sustainable non-domestic building. Graven Hill, just south of Bicester already has several zero carbon properties, across a range of building designs, techniques and materials. Hope Close, Banbury, is a development of 11 certified passive houses commissioned and developed by Cherwell DC for sale as Shared Ownership properties. Oxford City Council's housing company is building 43 affordable homes at Rose Hill incorporating enhanced insulation standards along with a high level of PV and working with the Low Carbon Hub with the aim of developing a virtual local electricity grid for residents using the generated electricity. Sassy Property and GreenCore are building 25 net-zero carbon homes at Springfield meadows, in Southmoor near Abingdon in the Vale of White Horse. Nine of these units will be for affordable rent. GreenCore are interested in other development opportunities in Oxfordshire as are other small developers. Oxfordshire partners have also been engaging with projects elsewhere in the country, including the Gold Smith Street development in Norwich which was awarded the Stirling Prize in 2019 and the Agar Grove development which is part of Camden Council's Community Investment Programme of £1 billion over 15 years.

30. Common lessons from these early adopter projects have highlighted this there are system-wide issues which will need to be addressed in an integrated manner in order to maximise the opportunities to deliver zero carbon solutions. These include:

- They require **commitment** to net-zero carbon / Passivhaus, recognising additional costs associated with being early adopters. Those authorities who have supported net-zero or near-zero carbon recognise that it not currently possible to replicate at scale given the costs, however more demonstrator projects are needed to demonstrate the benefits and achieve economies of scale.
- **Subsidy:** The majority of case studies are either directly or indirectly commissioned by local authorities with access to subsidised/council-owned land and supported with significant public subsidy and/or cross subsidy through private sales.
- **Environmental/Social investment**: For those authorities investing in net-zero carbon development, financial investment is not the only consideration. Other goals include the creation of sustainable communities, tackling fuel poverty, reducing carbon emissions and meeting climate emergency commitments.
- **Infrastructure investment:** To be genuinely net-zero carbon, new housing developments need to be accompanied by sustainable transport and energy investment. This is particularly a challenge for developments in rural areas which remain largely reliant on private car use.

- **Long-term/whole-life approach**: Developments are considered as long-term investments. Higher spec materials will need replacement less frequently, Goldsmith Street development accentuated external public spaces but designed out internal communal spaces to reduce maintenance costs. Lower tenant turnover/voids are also anticipated.
- **Specialist developers**: Procurement of specialist design consultants, developers and contractors with experience and skills required is challenging, though the number with the appropriate expertise in the market is now increasing.
- **Funding constraints**: Challenges for stock owning local authority developers include continued uncertainty and constraints on funding, such as recent increase in PWLB borrowing rates, restrictions on use of Right to Buy Receipts and competing priorities for investment including upgrading of existing stock and delivering significant numbers of affordable homes to meet housing need.

Direct involvement in Development

31. Oxford City Council's wholly owned housing company, Oxford City Homes Ltd (OCHL) is planning to deliver 2,000 homes over the next ten years with the aim of ensuring high quality new homes in terms of sustainability, thermal and energy efficiency and climate resilience. Whilst embracing the need for all new mixed tenure homes to move towards net-zero carbon as soon as possible, financial viability assessments show a need to balance this with the number of homes built and the level of affordable housing. OCHL is therefore pursuing a fabric first approach for future phases of development (airtightness to walls, roof , floors and windows) to maximise thermal and energy efficiency, limiting energy production requirements within the home, so that PV has maximum effect on reducing overall all electric (no gas) heating bills, and water saving fittings. This approach will aim to maximise carbon reduction before offsetting measures and developments will be future proofed to achieve further carbon reduction as technologies advance. The City Council has committed to bringing forward demonstration net zero or Passivhaus developments through the housing company and will undertake yearly reviews of the Business Plan to advance the approach as quickly as possible.

32. Cherwell's housing company, BUILD! is working to make use of new technology, innovation in construction methods and design to produce low energy homes on all its future developments. The Council's wholly owned company at Graven Hill is a test bed for construction techniques at the largest self-build site in the UK.

Decarbonising energy

33. Given the challenges to delivering all new homes to Passivhaus and zero energy standards and to retrofitting existing stock, decarbonising energy supply will deliver the greatest impact on reducing carbon emissions from buildings, including housing. This is recognised by the CCC who have recommended it as the highest priority for the UK government.

34. There is already a significant amount of activity in Oxford and Oxfordshire in promoting renewable energy. The Oxfordshire Energy Strategy, formally

launched at the Eco Business Centre in Bicester in November 2019, sets a framework to create a decentralised energy system that retains the economic benefits from a low-carbon transition within the county. The strategy includes a focus on supporting clean generation projects across the county, and projects that reduce energy demand and increase energy efficiency for domestic, industrial, commercial buildings and transport.

35. The Energy Strategy Delivery Plan sets out a suite of year one headline projects in promoting renewable energy. It includes two of the four national energy systems demonstrator projects which have secured c£80m of government investment over three years. *Energy Superhub Oxford* (ESO) and *Project LEO* (Local Energy Oxfordshire), will create opportunities for individuals, businesses and local communities to trade the energy they generate, use and store it at a local level. The Oxfordshire authorities are also exploring how to support local additional renewable energy production by Low Carbon Hub by entering a long term purchasing arrangement called a Power Purchase Agreement (PPA).

36. Low Carbon Hub, Cherwell District Council and Oxford City Council are also partners in the OxFutures project, supported by European Regional Development Funds, delivering grants and fully-funded energy efficiency audits for small and medium enterprises (SMEs) in Oxfordshire. The new Energy Services Company (ESCO) will work with local contractors to deliver projects. Finance and insurance backing will make the projects low-risk. The business model, marketing toolkit, financing and insurance backing are provided by EnergyPro, and demonstrate a new *'ESCO-in-a-box'* system that could be used by local delivery partners throughout the country.

37. In addition to these projects within the Energy Strategy, The Low Carbon Hub partnership, itself, has a portfolio of more than 40 energy projects across Oxfordshire including community renewable energy projects in many local schools and businesses as and have helped to leverage £15million investment into local energy projects.

Recommendations

38. Oxfordshire's economic growth and forecast housing delivery with Garden Towns and new settlements at Didcot, Bicester and West Oxfordshire, present an opportunity for Oxfordshire to be a front runner in scaling up delivery of low carbon housing as part of the ambition for sustainable communities. The Local Industrial Strategy (LIS) highlights the opportunity for Oxfordshire as an area of innovation and new technologies to be a pioneer in preparing communities for technological and environmental change and sustainable living under the Living Oxfordshire (living labs) programme of the LIS. The Oxford to Cambridge Arc could offer the potential for Oxfordshire to benefit from investment and policy flexibility and to scale up interventions and new technologies across the wider area.

39. The Growth Board partners can support these opportunities by:

a) **Making the case to Government** for clear and ambitious national standards, which set a long term trajectory for minimum standards to 2050 to

provide market stability and enabling long term investment choices and decisions to be made. This should be accompanied by investment and incentives for local authorities and developers to move more quickly to higher standards. The discussions with government on the Oxford to Cambridge Arc could provide an opportunity to pursue this agenda.

b) **Championing the exchange of good practice and guidance** on sustainable and zero-carbon construction between Oxfordshire authorities and development partners to promote uptake and set local expectations. There are a number of existing forums, for example Construction Excellence delivering learning and promotional events. The Growth Board's Executive Officer Group, working with the LEP's Clean Growth Sub Group to identify and publicise opportunities for showcasing excellence and innovation in sustainable construction.

c) **Exploring opportunities to scale up low carbon technologies through Modern Methods of Construction (MMC)** which have the potential to bring down the costs and scale up delivery of highly energy efficient homes. This will require a pipeline of projects to create demand for modular build at a scale to deliver cost efficiencies and supply. The Growth Board could propose that Homes England works with local authorities, OxLEP, registered providers and private developers to develop a pipeline of sites for MMC. There is the possibility this could from part of a wider initiative across the whole Arc.

d) **The Oxfordshire Plan 2050**: Different alternatives for sustainable design and construction of buildings have been tested in the sustainability appraisal for the Oxfordshire Plan 2050. Higher design standards could be an objective of the Oxfordshire Plan 2050 with policies to support the delivery of the energy strategy and reduce carbon emissions. The joint plan is the earliest and therefore fastest opportunity to put new proposals to an inspector and therefore gain maximum weight in the planning system. Consideration could also be given to how higher expectations of standards could be set in advance of the Oxfordshire Plan (for example through using shared evidence base for local plans and guidance).

e) Making the case to Government for sustained incentives, investment guidance and **support for local retrofit programmes** for existing homes

f) **Support public facing campaigns** that raise awareness of what individuals can do to reduce energy consumption in their own homes, increasing understanding of the benefits of energy efficient homes and lifestyle adaptations to make them most effective and to increase market demand for higher energy standards.

Financial Implications

40. Recommendations will need to be delivered within existing Growth Board or partner resources.

Legal Implications

41. There are no legal implications arising from this report.

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