

To: Oxfordshire Growth Board
Date: 19 July 2021
Report of: Ahmed Goga, Oxfordshire Local Enterprise Partnership
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Title of Report: Pathways to a Zero Carbon Oxfordshire Report

Purpose of report: This report draws attention to the recent publication of the *Pathways to a Zero Carbon Oxfordshire* Report produced by the Environmental Change Institute at the University of Oxford, on behalf of twelve Oxfordshire partners from across the public, private and community sectors. The report provides a comprehensive and authoritative assessment of routes the County faces to achieving a net zero carbon Oxfordshire by 2050 or sooner. All communities and organisations across Oxfordshire have a role to play in ensuring its recommendations can be delivered at pace, for the benefit of everyone who lives here.

How this report contributes to the Oxfordshire Strategic Vision Outcomes:
The Oxfordshire Strategic Vision aims to secure a carbon neutral Oxfordshire by 2040, and to leave the natural environment in a better state in which it was found. The recommendations in this report give due weight to new evidence and information which will be critical in informing how the Strategic Vision is delivered.

Recommendation: That the Growth Board:

1. Welcomes the report as an authoritative evidence base for informing strategic planning in Oxfordshire with respect to local zero carbon ambitions.
2. Considers how the report can inform long-term transformational delivery against the Oxfordshire Strategic Vision.
3. Requests that the emerging Growth Board Environment Advisory Group consider the outcomes of the report at a future meeting.
4. Requests that each Growth Board member use the report to drive action at pace within their own organisations in the short and long term.

Appendices:

Appendix 1: Pathways to a Zero Carbon Oxfordshire Report (summary)

Appendix 2: Pathways to a Zero Carbon Oxfordshire Report (full report [hyperlinked only](https://www.eci.ox.ac.uk/research/energy/pathways-to-a-zero-carbon-oxfordshire-report.html))¹

Introduction

¹ Full report available at: <https://www.eci.ox.ac.uk/research/energy/pathways-to-a-zero-carbon-oxfordshire-report.html>

1. Climate change is at forefront of policy thinking – whether it is for national Government, local government and the wider public sector or business and local communities. Everyone has a role to play. The understanding and appreciation of climate change is more established and accepted and there is recognition of the need to do more to reduce and eliminate carbon gases as soon as possible to protect the environment and human activity.
2. Following the publication of the landmark *Low Carbon Oxfordshire* report in 2014, the Environmental Change Institute (ECI) at the University of Oxford was tasked by twelve Oxfordshire partners from across public, private and community sectors to assess the County’s progress to net zero by 2050 and the pathways which we will need to develop in order to achieve our goals. The partners included:
 - OxLEP
 - Oxfordshire County Council
 - Cherwell District Council
 - West Oxfordshire District Council
 - Oxford City Council
 - South Oxfordshire District Council
 - Vale of White Horse District Council
 - Oxford Brookes University
 - SSEN
 - Low Carbon Hub
 - Greater South East Energy Hub
 - Oxford Sciences Innovation.
3. The 2014 report aimed to draw attention to the strengths of the low carbon economy in Oxfordshire, including highlighting clusters of low carbon businesses and community groups. This report has been critical in informing key policy developments in Oxfordshire in recent years, including the adopted Oxfordshire Energy Strategy in 2018/19.² Working with and funded by the steering group of partners, the ECI and Bioregional³ has produced a fresh report to take account of this new context, identifying pathways to a zero carbon Oxfordshire by 2050, in line with the UK’s commitment to net zero carbon by 2050.
4. The context for a low carbon Oxfordshire is now very different. Climate policy ambition has been scaled up, as reflected through the Oxfordshire Strategic Vision, climate declarations / acknowledgements and other emerging local plans and strategies. Substantial investment has been made in research, innovation and the deployment of low carbon solutions, but there is a need for collective action and to act faster in order to achieve our goals. In 2021, the ECI have produced a *Pathways to a Zero Carbon Oxfordshire* report (“the Pathways Report”) to reflect the shifting context, which the Growth Board is asked to consider.
5. In 2021, it no longer makes sense to think about a low carbon economy as a subset of the broader economy. It is imperative that the entire economy transitions to *zero carbon* at speed, not least because progress on climate mitigation has been insufficient in recent years. Positively however, the report reflects that “The county is currently on track to achieving the 50% emissions reduction target set

² Oxfordshire Energy Strategy, 2018. OxLEP

³ See full report for identified contributors, partners and funders.

out in the Oxfordshire Energy Strategy, on the basis of substantial achievements in decarbonising electricity supply and increased energy efficiency.”

6. The Pathways Report therefore addresses how Oxfordshire’s entire economy can achieve net-zero emissions by 2050, or sooner, highlighting that every person and sector has a role to play. It provides a comprehensive and robust analysis of the pathways available for Oxfordshire and represents the most authoritative work to date in this area. It highlights the enormous challenges ahead in transforming our energy and transport systems, substantially upgrading our building stock, and using our land for enhanced carbon sequestration; being “extremely challenging” without additional powers locally. It identifies the potential for Oxfordshire to be leading the way nationally, building on an already thriving economy with a substantial talent base locally. Progress since 2014 has been uneven, and the report points to areas where change and investment is urgently needed.
7. The Pathways Report, which was launched at a public webinar on 29 June 2021, should be considered a primary resource for informing future strategy and policy developments among Growth Board partners and beyond. This covering report is not intended to replicate or reflect the breadth of content provided in the full report, and it operates as a signposting document only. It is recognised that more time will be needed for partner organisations to fully assess the cross-cutting implications of this work, and how it can be harnessed, given its very recent publication.

Pathways to Net Zero

8. The high level aims of the report are set out on page 11, together with the projects overall scope. As expressed in the document, the report is structured into eight chapters following the introduction:⁴
 - **Chapter 2:** *discusses the new context for climate ambition with a focus on policy at global, national and local levels.*
 - **Chapter 3:** *revisits the 2014 scenarios and examines the latest available data for Oxfordshire to take stock of recent progress.*
 - **Chapter 4:** *summarises the detailed analysis which follows in later chapters by setting out three pathways for eradicating emissions from Oxfordshire’s economy. To illustrate the scale of change and investment required, these are compared with a ‘Steady Progression’ scenario in which net-zero is not achieved.*
 - **Chapter 5:** *focuses on Oxfordshire’s innovation ecosystem and the low carbon sector.*
 - **Chapters 6 and 7:** *examines two sectors where there remains significant distance to travel: transport and the built environment.*
 - **Chapter 8:** *discusses energy supply with a focus on different technologies for generating electricity and heat.*
 - **Chapter 9:** *reviews the role of land and carbon sequestration in achieving climate goals. The report concludes with a discussion of the implications for local policy and investment, and provides recommendations for a wide range of stakeholders.*

⁴ P.11

9. This report presents three different routes to a net zero economy for the next three decades, together with an additional scenario that falls short of the stated climate aims. The report explains:⁵
- “Our **Steady Progression** scenario falls well short of stated climate aims and illustrates the scale of change needed to achieve net-zero.
 - **Societal Transformation** is led from the bottom up, with householders adopting new technologies and practices, and community groups corraling action.
 - **Technological Transformation**, by contrast, relies on systemic changes driven at the national level, including the deployment of hydrogen for heating and other technical solutions which require the least change to individual behaviour.
 - **Oxfordshire Leading the Way** mirrors the widespread cultural and behavioural changes seen in ‘Societal Transformation’ and combines this with high deployment of new local electricity generation using solar photovoltaics.”
10. The report then provides a substantial and detailed assessment of changes required across different sectors including: Low carbon innovation, Transport, Energy efficiency and heating in buildings, Low Carbon Energy, Land use and carbon sequestration. Recommendations are provided for how local authorities and other institutions can support progress towards shared climate goals.

Findings of the Report and Next Steps

11. Building on the recent series of commitments made locally and nationally with respect to carbon reduction, this report provides an authoritative route map to not only reach net zero carbon by 2050, but for Oxfordshire to lead the way nationally through transformative change and innovation. As a leading evidence base for informing the delivery of the recently agreed Oxfordshire Strategic Vision⁶ and wider shared programmes of work, the report provides fresh and new information about the tangible changes needed to affect change. It recognises the diverse make up of Oxfordshire, its businesses and its communities, and the need for change to be inclusive.
12. To maximise the impact of this work, the Growth Board and its partners across Oxfordshire are asked to consider how the conclusions and recommendations (covered below) can inform future strategic and operational work, with an emphasis on the identification of collaborative system-wide actions that can place Oxfordshire firmly on the pathway to a zero carbon future at pace. Each organisation has a role to play in ensuring Oxfordshire can reach its ambitions in this area. In developing a response to the recommendations in the Pathways report, practical steps should be identified which can ensure as wide a commitment as possible to achieving shared ambitions. This extends beyond carbon reduction targets to more tangible actions.
13. This approach will need to consider how Oxfordshire’s diverse communities can be supported in an inclusive way to take action. We must actively recognise and

⁵ P.6

⁶ Agreed by Oxfordshire’s six Local Authorities in April 2021.

address economic, social and environmental limitations that create barriers to action, and ensure our work remains relevant and engaging to ensure all communities have a stake in the future of Oxfordshire. The representative role of councillors and community groups in this respect is particularly important. In order to meet the three pathways that can achieve net zero by 2050, the Pathways report explains that each must involve:⁷

- *the substantial expansion of solar generating capacity in Oxfordshire. Large ground-mounted solar parks are preferred in Technological Transformation, with others seeing the widespread deployment of rooftop arrays. The business case for new installations will rely on the falling price of photovoltaic panels and battery storage, and will face the challenge of geographically varied grid constraints.*
- *a major programme of retrofit for existing homes and non-domestic buildings, led by strong and consistent national policy including significant subsidy.*
- *a strict approach to planning, regulation and compliance for new homes and developments so that they do not result in increased carbon emissions from the building, transport, or energy sectors.*
- *substantial increases in electricity demand, driven by heat and transport, requiring grid reinforcement and flexibility provided by various means.*
- *the phase out of gas boilers and fossil-fuelled modes of transport.*
- *a need for innovation in food production to maintain or increase output while agricultural land makes way for development, and Oxfordshire grows its fair share of biofuels.*
- *a reduction in overall travel demand.*
- *restoration of ecosystems and natural capital, for enhanced sequestration and increased biodiversity*

Conclusion

14. The Growth Board is requested to welcome the Pathways to a Zero Carbon Oxfordshire Report as an authoritative evidence base for informing strategic planning with respect to local zero carbon ambitions, and delivery of the Oxfordshire Strategic Vision. It is recommended that Pathways report forms part of the Environment Advisory Group's agenda for a future meeting, where more detailed actions can be assessed and recommended. In addition, it is recommended that action is undertaken at pace within individual organisations to ensure that ongoing and new work in this area takes account of the Pathways report and its findings.

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