Topic Paper 9

Energy and Climate Change

February 2019

Purpose

1. The purpose of this Topic Paper is to provide background information on energy and carbon emissions in Oxfordshire and how this is relevant to the development of the Oxfordshire Plan 2050. Further versions of these Topic Papers may be produced at later stages in the Plan making process.

Context

2. The UK Clean Growth Strategy[1] sets the government's ambition to accelerate the pace of clean growth in the UK, by delivering increased economic growth and decreased emissions and for decarbonising all sectors of the UK economy through the 2020s. Recognising that local areas will play a key role, the Department for Business, Energy and Industrial Strategy has supported the development of local energy strategies across England.

3. The Oxfordshire Energy Strategy[2], developed by OxLEP in partnership with all local Councils, University of Oxford, Low Carbon Hub, the Distribution Network Operator and other stakeholders, and endorsed by the Growth Board in November 2018, sets objectives to:

- secure a smart, modern, clean energy infrastructure which will support planned housing, industrial and commercial growth.
- Lead nationally and internationally to reduce countywide emissions by 50% by 2030, on 2008 levels, and set a pathway to achieve zero carbon growth by 2050

4. Meeting the emission reduction target will need ambition and action across all existing sectors within the County to reduce energy demand and significantly increase low carbon energy generation.

5. New buildings that are designed for a zero carbon future, avoid the inefficiencies of future costly and disruptive retrofit, reducing energy costs for residents and businesses and combating fuel poverty, as well as minimising demand (particularly peak demand) on an already constrained grid. The following section sets out the relevant legislative and policy frameworks covering energy and emission reductions.

[1] Clean Growth Strategy (Oct 2017) Department for Business, Energy and Industrial Strategy
[2] Oxfordshire Energy Strategy (Nov 2018) OxLEP

International and National legislation

Carbon emissions

Paris Climate Agreement

6. The historic United Nations Paris Climate Agreement, 2015 (ratified by the UK in November 2016) commits nations to keeping the increase in average global temperatures well below 2°C above pre-industrial levels; aims to limit the increase to 1.5°C and sets a long-term goal of net zero carbon emissions[3].

The UK Climate Change Act[4]

7. The Climate Change Act 2008 commits the UK government to reduce greenhouse gas emissions by at least 80% by 2050 from 1990 levels, setting legally binding 'carbon budgets' capping the amount of emissions released within certain periods. The first five periods have been put into legislation and run until 2032, however it should be noted that the targets within the Climate Change Act are not in line with the more stringent requirements set in the Paris Climate Agreement.

Energy efficiency

Emission reductions and energy efficiency in National Planning Policy

8. The National Planning Policy Framework[5] (NPPF) seeks to ensure that plans take a proactive approach to mitigating and adapting to climate change and support the transition to a low carbon future. The planning system should help to shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability to and improve resilience of communities and infrastructure to climate impacts and support renewable and low carbon energy and infrastructure.

9. Plans should provide a positive strategy for increasing energy supply from low carbon and renewable sources. They should identify suitable areas for low carbon and renewable energy generation and identify opportunities for development to draw energy from decentralised, renewable and low carbon energy sources.

10. The Planning and Energy Act 2008[6] allows Local Authorities in England to impose reasonable requirements on new developments to ensure that:

a. a proportion of energy used in development is from renewable / low carbon sources, and;

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[3] Paris Climate Agreement (2015) UNFCCC
[4] The Climate Change Act
[5] Section 14, NPPF (July 2018) MHCLG
[6] Section 1, Planning and Energy Act 2008

b. new developments must comply with energy efficiency standards that exceed the energy requirements of building regulations.

11. The Government's response to the NPPF consultation[7] in 2018 confirmed that the provisions of the Planning and Energy Act continue to apply:

"To clarify, the Framework does not prevent local authorities from using their existing powers under the Planning and Energy Act 2008 or other legislation where applicable to set higher ambition. In particular, local authorities are not restricted in their ability to require energy efficiency standards above Building Regulations. The Government remains committed to delivering the clean growth mission to halve the energy usage of new buildings by 2030".

Local Plans

12. The Oxfordshire District Councils currently have a variety of planning policy requirements covering climate change and energy efficiency.

13. Cherwell District Council's adopted local plan (2011-2031) has 5 specific policies on sustainable development which broadly seek to limit the amount of energy needed in development by ensuring that the initial demand is minimised and seeking to ensure that the design of new development utilizes an energy hierarchy.

14. The South Oxfordshire emerging Local Plan 2011 – 2034 and Vale of White Horse adopted Local Plan 2011- 2031 contain policies for efficient use of resources, sustainable design and renewable energy. These policies are broadly similar in seeking to minimise the initial demand and adopt climate change adaptation measures, utilise energy efficiency measures and support renewable and low carbon generation. The Vale of White Horse has a chapter dedicated to climate change and the environment.

15. The West Oxfordshire adopted Local Plan 2011 – 2031 contains a policy for renewable or low carbon energy development, providing conditioned support for renewable and low carbon developments and requiring certain developments to conduct feasibility assessments for district heating, battery storage and community energy initiatives.

16. The emerging Oxford Local Plan 2011 – 2036, contains a policy for Sustainable Design and Construction. Besides maximising the use of low carbon energy and energy efficiency, the policy contains a specific requirement for new residential developments to achieve a 40% reduction in carbon emissions from Part L 2013 Building Regulations, to be achieved through a combination of on-site renewable energy and other low carbon technologies. This requirement will increase to 50% by 2026 and to zero carbon from 2030.

[7] Government response to the draft revised NPPF consultation, Q.32-33 (July 2018)

17. The Oxford policy also details requirements for non-residential properties, of certain sizes, in meeting BREEAM excellent (or equivalent) and achieve a 40% improvement in regulated emissions from Part L 2013 Building Regulations, rising to 50% from 2026.

Other relevant strategies

UK Clean Growth Strategy (BEIS, 2017)[8]

18. This strategy sets out proposals that aim to accelerate the pace of clean growth in the UK, by delivering increased economic growth and decreased emissions and for decarbonising all sectors of the UK economy through the 2020s. The strategy is a key plank of the government policy that will help to meet the Climate Change Act commitment to reduce greenhouse gas emissions by at least 80% by 2050 when compared to 1990 levels. It sets an ambition for as many homes as possible to be improved to EPC Band C by 2035, where practical, cost-effective and affordable.

Smart Systems and Flexibility Plan (BEIS, 2017)[9]

19. National Policy plan detailing the UK government's guiding principles to create a smart, flexible energy system. The plan sets out the need for the Distribution Network Operators (DNOs) to transition Distribution Systems Operator (DSO)to support the changes to the energy system.

The local DNO to DSO strategies (Scottish and Southern Electricity Network, 2018; UK Power Networks, 2018; Western Power Distribution, 2017)

20. Detail the transition plans for the DNOs in Oxfordshire. The changes will enable smarter, more flexible management of electricity supply and demand across the county.

Challenges for the Oxfordshire Plan

Key Issues

Meeting carbon emission targets

21. Carbon reduction targets have been set and commitments made at a national and local level covering the lifetime of the Oxfordshire Plan.

22. The Oxfordshire Energy Strategy commits to reduce emissions by 50% by 2030 against 2008 levels, reflecting a longstanding target agreed by all Oxfordshire authorities[10]. In addition, the Energy Strategy sets a longer-term goal to reach zero carbon by 2050.

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[8] The Clean Growth Strategy (October 2017), BEIS
[9] Smart Systems and Flexibility Plan (July 2017), BEIS
[10] Oxfordshire 2030 – Oxfordshire Partnership

23. These commitments are in line with and build upon national government policy detailed within the Paris Agreement and Climate Change Act. Success in achieving these emissions targets will also improve quality of life and increase our economic prosperity[11].

24. Emissions analysis and projections underpinning the Oxfordshire Energy Strategy[12], indicate that, under business as usual with full local implementation of current national policies, the county will miss these emissions targets unless further measures are taken as detailed in Figure 1. Residential properties and road transport are the most significant contributors to overall carbon emissions (Figure 1).

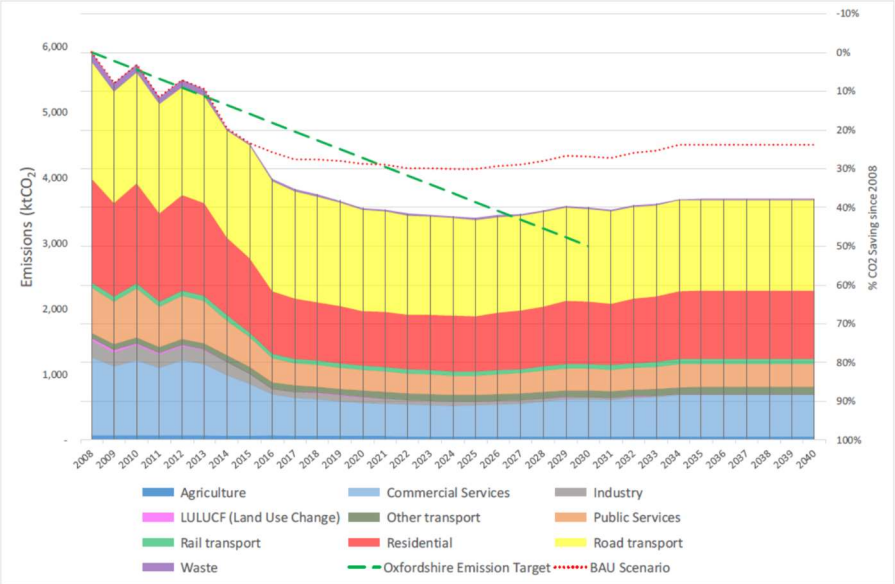

Figure 1: Oxfordshire Emissions Projections Against 50% Target

25. However, the emissions model also indicates that emission reduction targets can be met by driving a committed and ambitious low carbon agenda in tandem with delivery of the 100,000 new homes committed to in the Housing and Growth Deal. This approach underpins our agreed Energy Strategy.

26. In order to deliver this strategy deep emission reduction is required in all existing sectors, along with a substantial increase in renewable or low carbon energy generation.

27. Alongside this it is essential that new buildings are designed for a zero carbon future, avoiding the inefficiencies of future costly and disruptive retrofit, reducing energy costs for residents and businesses and combating fuel poverty, as well as minimising demand (particularly peak demand) on an already constrained grid. The modelled scenario assumes that all new homes would meet an energy efficiency standard equivalent to that required at the Northwest Bicester development.

Energy infrastructure

[11] The Clean Growth Strategy (October 2017), BEIS
[12] Oxfordshire LEP Greenhouse Gas (GHG) Projections: 2018 Update (2018) Aether

28. The Oxfordshire Energy Strategy highlights a number of infrastructure considerations:

- the need to significantly increase the proportion of renewable electricity generated within the County;
- the need for energy systems and the grid to operate in a way that allows growth, and particularly clean growth;
- the need to decarbonise both heat and transport and the potential implications for electricity demand and distribution.

29. Modelling underpinning the Oxfordshire Energy Strategy suggests that in order to meet targets 58% of electricity demand in Oxfordshire must be generated from renewable resources[13].

30. The government has recognised that the previous system of centralised generation of electricity transported through to the end user is changing to a more decentralised system[14].

31. This in turn is driving the need to change system and network operating models – Distribution Network Operators (DNOs) will transition to Distribution System Operators (DSOs).

32. National Grid predict that electric vehicles will make up between 80-100% of total car ownership by 2050 as illustrated in Figure 2. The My Electric Avenue report for SSE My Electric Avenue concluded that EVs could cost £2.2 billion in UK grid infrastructure without managed charging[15].

[13] Oxfordshire LEP Greenhouse Gas (GHG) Projections: 2018 Update (2018) Aether
[14] Upgrading our Energy system: Smart Systems and Flexibility Plan (July 2017), BEIS
[15] My Electric Avenue

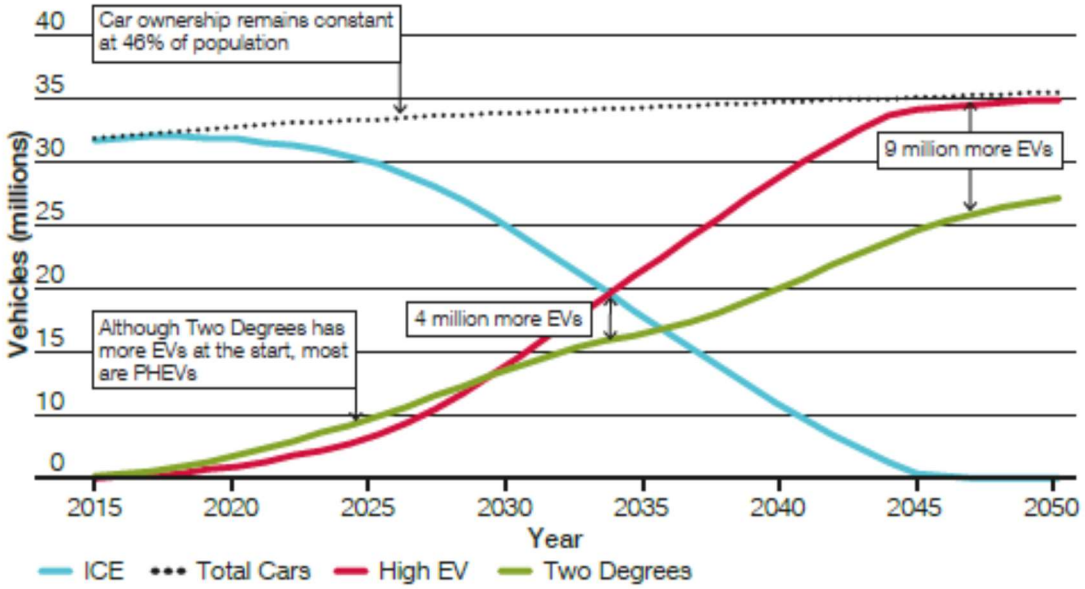

Figure 2: National Grid Future Electric Vehicle Uptake

33. These changes are in part to facilitate a more efficient energy system, overcoming electricity grid constraints in new and innovative ways, producing a fairer and more cost effective solution. The move to a more flexible, smart energy system will help enable additional capacity, particularly renewables, to be incorporated into the system.