

Understanding Non-Domestic Retrofit in Oxfordshire

Energy Solutions Oxfordshire (ESOx) provides building energy assessments to the non-domestic sector, identifies energy waste, and gives advice on low carbon technologies to cut energy consumption, carbon emissions, and save money.

This report presents key data about non-domestic retrofit in Oxfordshire, to help stakeholders better target resources and funding.

Local climate action context

Oxfordshire has long been active in the transition towards net zero carbon emissions, culminating in two major UK “demonstrator” projects: the [Energy Superhub Oxford](#) and [Project LEO](#).

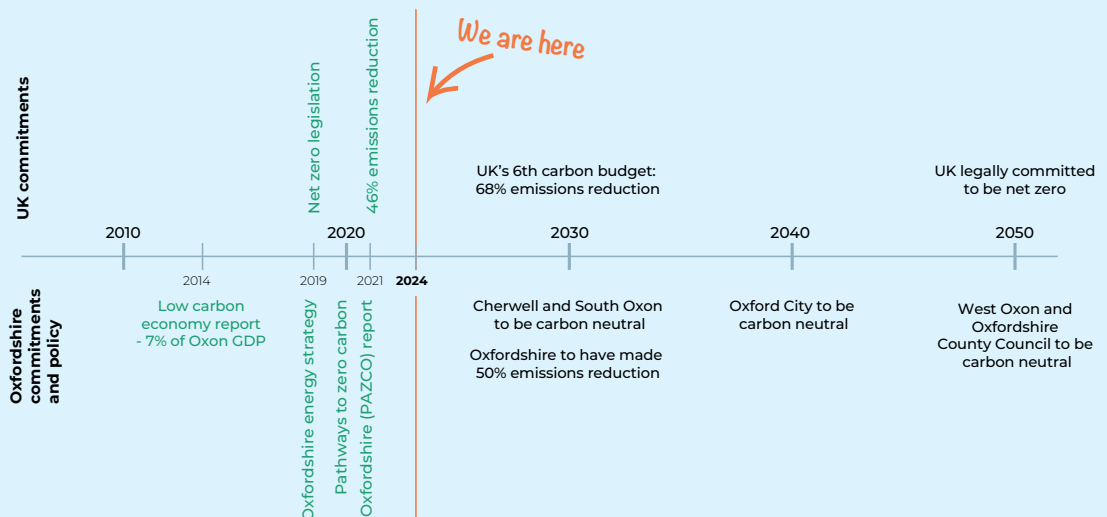
Countywide projects, such as [OxFutures](#), have successfully demonstrated practical ways to decarbonise the local economy and Oxford University has mapped routes to net zero in the [Pathways to a Zero Carbon Oxfordshire](#) (PAZCO) report.

At a district council level all five districts have declared a climate emergency, and most have set targets for emissions reductions which exceed national goals. The [2019 Oxfordshire Energy Strategy](#) set the agenda for increased

ambition on climate goals and established a target of 50% emissions reductions for the county by 2030. Strategic goals to update the county’s building stock, both domestic and non-domestic, are included, but the means to do so isn’t laid out. Policy and investment need a strong evidence base, if the county is going to achieve its ambitious goals.

Here in one place is research on the current condition of Oxfordshire’s non-domestic building stock, which organisations are upgrading their buildings to make them energy efficient, what motivates them, and what technologies they are installing.

Timeline on national and local climate commitments



Size and condition of non-domestic building stock in Oxfordshire

The University of Oxford's Environmental Change Institute estimates that Oxfordshire's non-domestic building stock in 2020 consisted of 18,400 buildings.

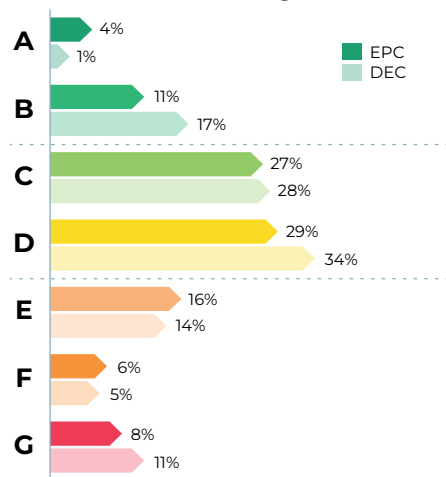
The condition of these buildings is captured in Energy Performance Certificates (EPCs) and Display Energy Certificates (DECs). In Sept 2020 a total of 11,800 non-domestic EPCs were logged for Oxfordshire buildings. These are required when a property is constructed, sold or rented.

Larger public buildings over 250 sqm, that are frequently visited, are covered by DECs. There were 3,875 DECs logged for Oxfordshire buildings between 2014-2019. **Graph 1**, taken from the PAZCO report, shows the percentage of buildings within the different ratings, A being the best energy performing, and G the worst.

The non-domestic building sector is characterised by its diversity of building types, sizes, functions and energy demands. There are many technologies and improvements to consider; but not all are appropriate within all buildings. It is therefore important to understand each organisation, its premises and decision-making processes.

Effective and timely change in Oxfordshire's non-domestic sector if left to market forces will not take place faster enough or at sufficient scale. Dedicated engagement with building owners and occupiers is therefore needed to identify appropriate retrofitting solutions.

Graph 1: Energy rating for non-domestic Oxfordshire buildings



Source: PAZCO report

The graph shows that less than a fifth of buildings fall within the top two highest-performing categories, A and B. With nearly two-thirds (59%) of properties not currently meeting the proposed standards of being rated B or above, there is a significant need for retrofitting. It's important to note that as of 2021, there was a consultation discussing the possibility of setting a minimum requirement for properties to achieve a B rating or above by 2030. However, this proposal has not yet become law.

Why is addressing energy demand in non-domestic buildings important?

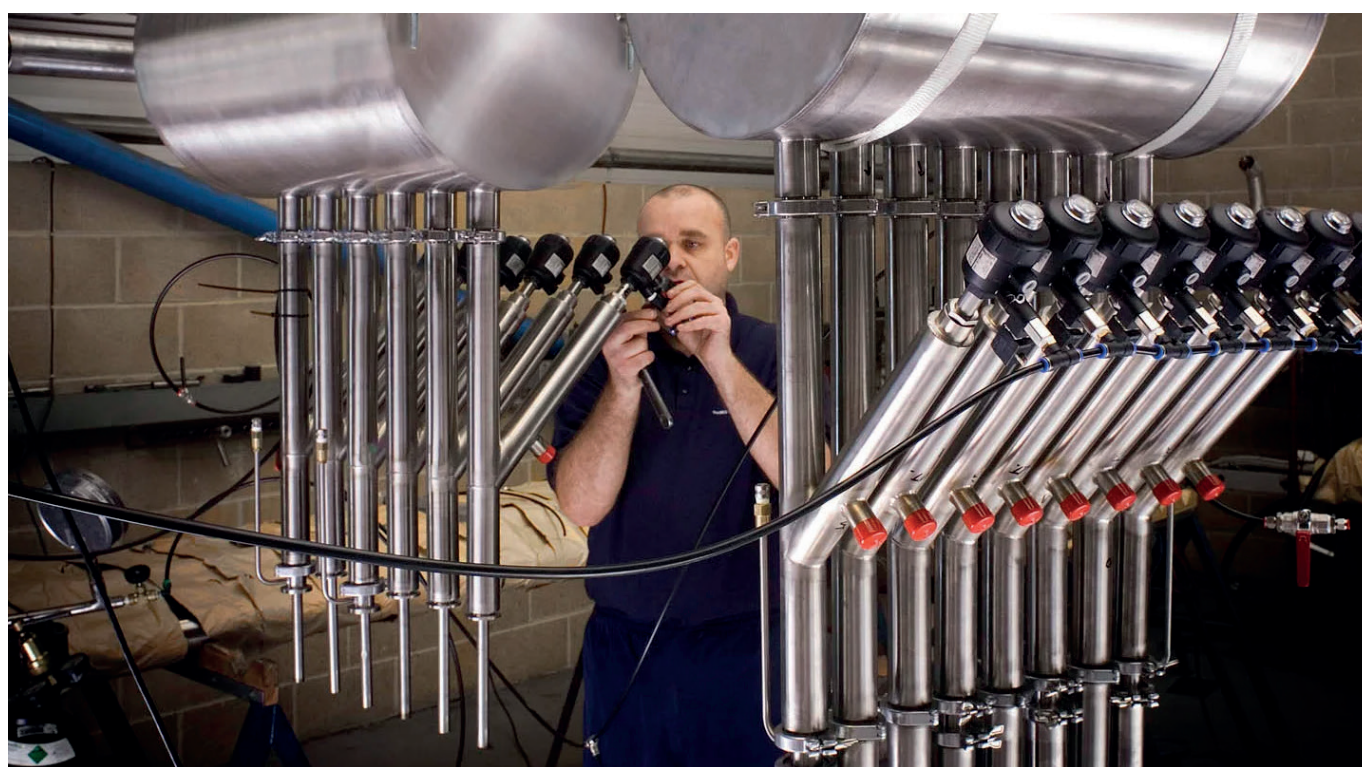
This sector uses a third of the energy consumed in Oxfordshire. BEIS statistics (2020) show that energy demand for the domestic and the industry / commercial sectors were nearly identical in Oxfordshire, making up 31% and 29% of demand respectively. If institutional energy demand (5%) is added to commercial and industry demand, non-domestic buildings use more energy than domestic properties.

There are several reasons to believe that tackling non-domestic building stock may be easier and more productive than tackling the domestic building stock:

- There are only 18,400 non-domestic buildings, compared to 295,500 homes.
- There are large commercial landlords that own and control multiple buildings within the county, such as education, manufacturers, charities and retail.
- Organisations often have a budget and processes for implementing improvements, and staff for whom project management can be rolled into their job, unlike householders.

There may be additional benefits to upgrading energy efficiency in a workplace. If employees understand and experience the benefit of technologies such as heat pumps, PV solar or EV charging at work, there is strong reason to believe they will consider these solutions in their own home.

The remainder of this report presents data to help target non-domestic support and interventions.



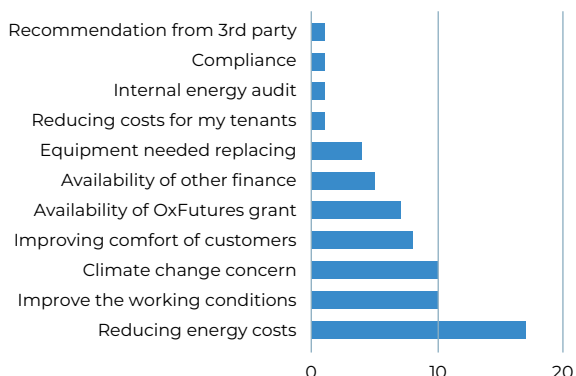
What motivates non-domestic organisations to retrofit their buildings?

The OxFutures project delivered 182 non-domestic building assessments during 2017-2022 and generated valuable insights. In 2022, 23 SMEs who had implemented measures, were asked what prompted them to act on reducing their energy consumption. Reducing energy costs was the most common response. Improving working conditions for staff and comfort for customers were also mentioned by 50% and 40% of responders respectively, while half cited concern for climate change as a reason for action. See **Graph 2**.

More recent research with a thousand businesses shows that energy costs are still a concern to business. Ofgem non-domestic consumer research (Dec 2023), surveyed 1,000 UK businesses and found that more than half of them (58%) were concerned about the impact of energy prices on their business, with 42% reporting they were very concerned. The steps they were taking to managing these costs are given in **Graph 3**. Only 8% of organisations had conducted an energy assessment or audit.

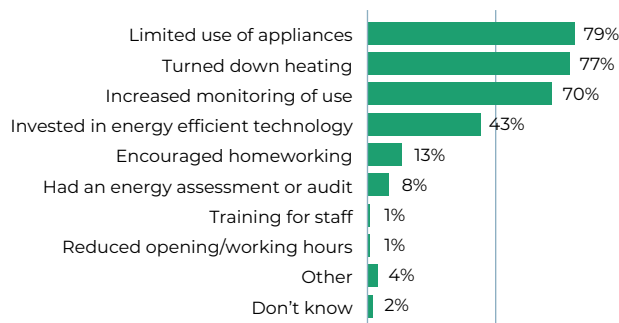
Knowing organisations are largely motivated by concern for energy costs is useful for outreach and communication exercises. Site assessments and case studies should make financial cost savings prominent.

Graph 2: Retrofitting your building: What prompted you to take action?



Source: OxFutures project

Graph 3: Steps taken to manage energy costs



Source: Ofgem

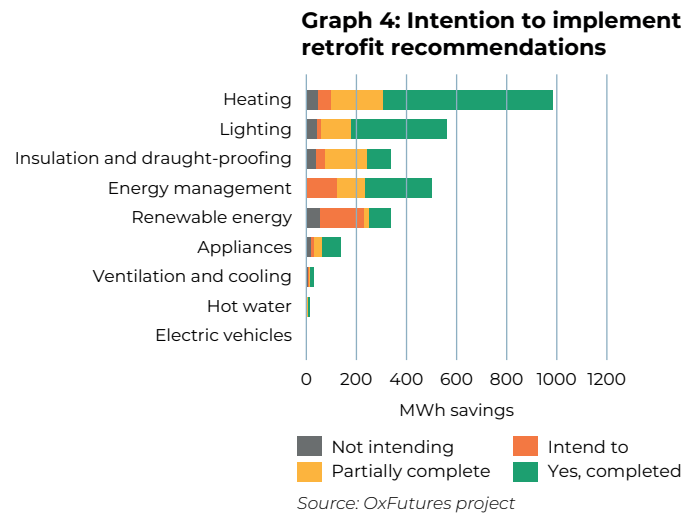


Which measures are SMEs implementing and how much energy are they saving?

The Environmental Information Exchange (EIE) at Oxford Brookes University monitored the implementation of energy efficiency measures amongst the 64 OxFutures SMEs who received an assessment and grant. They received responses for 507 measures, which showed 44% of the recommendations in the building energy assessments had been completed and 17% partially completed. Businesses said there were only 15% of measures they had no intention of carrying out (see **Graph 4**). Electric vehicle charging installations are under-represented in this survey, due to the time frame of the programme, which was 2017-2022.

Once advice was given on implementing measures, organisations instigated most of the recommendations, demonstrating that tailored advice is highly effective in stimulating action.

As the graph shows, heating, lighting and energy management had the most energy saving potential, indicating the areas that targeted financial support may result in the greatest energy and carbon savings. The graph also shows which changes organisations prioritise, based on the proportion of the bar in green and yellow.



What is the profile of those seeking to reduce their energy consumption?

ESOx has carried out analysis of the 282 organisations for whom they have delivered a building energy assessment in the last seven years. On average these organisations were longer established than the UK average, based on registrations at Companies House.

Targeting is likely to be more effective with longer established organisations. Economic Development Officers could play a part in identifying mature companies to target.

Two further characteristics that in ESOx experience increase engagement, are values driven and high energy using companies.

Energy consumption varied significantly between building types and the proportion of gas and electricity use. See **Graph 6**.

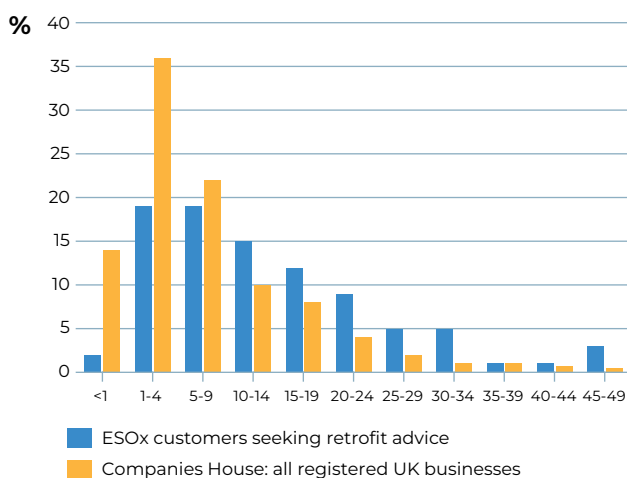
Spending on gas is significantly lower than on electricity, due to the large discrepancy in pence per kWh rates for the two fuel types. Caution should be taken when using these charts to prioritise sectors because averages may not tell the whole story. Some categories, such as hotels have a small sample size (3), which coincidentally were large buildings. See **Graph 7**.

At least half (48%) of ESOx customers were in leased premises, 30% owned their own building and 21% had an unknown tenure. Where possible, organisations who own their own premises should be targeted because decision making and building control is simpler than for tenanted properties.

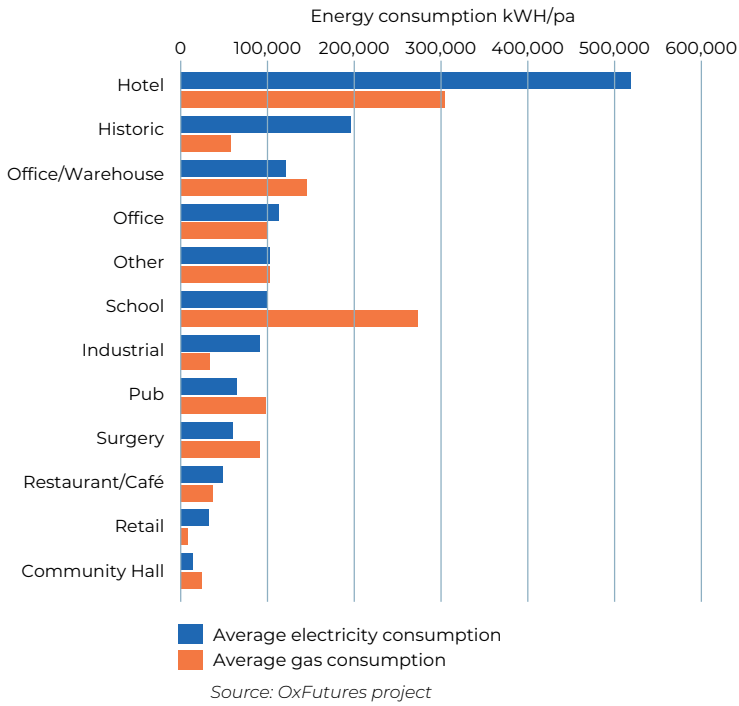
Table 1

	No of orgs	Average annual electricity cost	Average annual gas cost
College	12	£286,141	£100,787
Hotel	3	£101,774	£16,894
Office	44	£23,860	£6,226
Historic	9	£20,618	£2,618
Office/ Warehouse	40	£17,969	£6,263
School	10	£16,749	£8,219
Other	50	£15,574	£3,619
Industrial	33	£12,667	£1,497
Surgery	6	£9,510	£4,693
Pub	13	£8,910	£3,969
Restaurant/ café	15	£6,465	£1,735
Retail	18	£5,017	£446
Community Hall	22	£2,234	£1,100
Church	5	£1,002	£972
Total	282	£27,786	£8,157

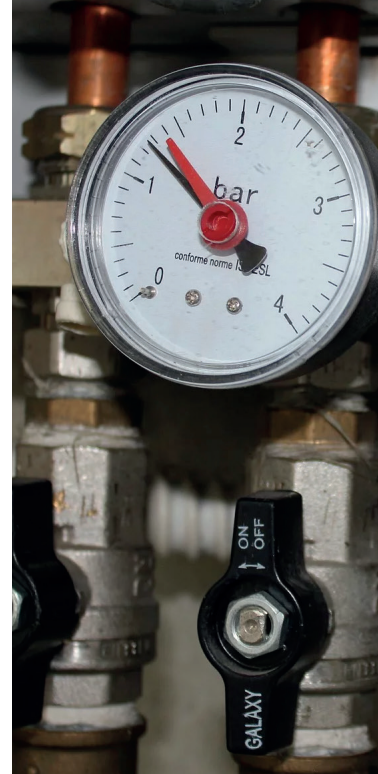
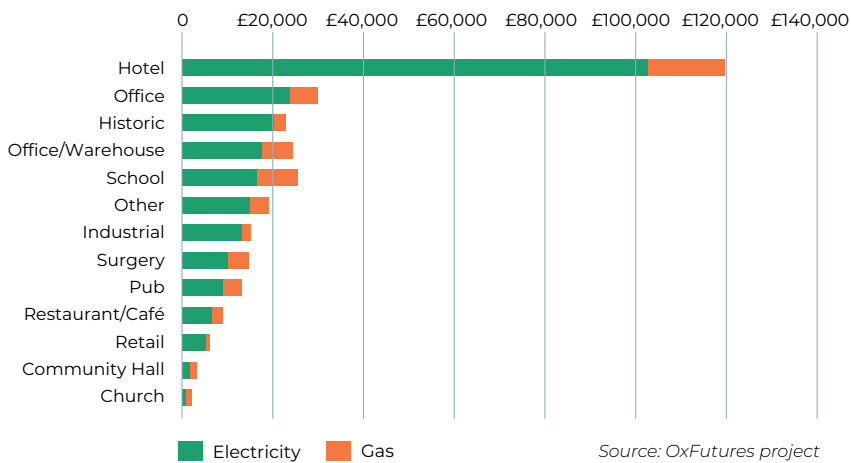
Graph 5: Age of companies



Graph 6: Average yearly energy usage by building type



Graph 7: Average yearly cost of energy by building type





Recommendations

Balance policy interventions

At both a national and local level the retrofit agenda is dominated by domestic interventions. Whilst the number of domestic buildings is significantly larger than non-domestic, their energy consumption (31%) is virtually the same as non-domestic (29%).

Fund energy assessments

If Oxfordshire is to meet the *Leading the Way* scenario presented in the PAZCO report, 20% of Oxfordshire businesses need to have a carbon footprint or energy assessment by 2030. This leaves six years to encourage 12% of businesses to take this step (based on OFGEM research that shows UK levels are currently 8%). ESOx experience indicates that this won't happen without funded or part-funded assessments, because very few SMEs are willing to pay for this expert help.

Fill the funding gap

ESOx has recommended measures that collectively could save 11.4MWh per year and create carbon savings of 4,700 tonnes of CO₂(e) every year.

Availability of funding is key to unlocking this potential. The one national initiative, the Voluntary Community and Social Enterprise (VCSE) Energy Efficiency Scheme will only help not-for-profit organisations. There is minimal support for profit-making businesses. A local solution should be sought to fill this funding gap.

Table 2

	No of orgs with ESOx assessment	Total potential energy savings (kWh/yr)	Total potential carbon savings (tCO ₂ e/yr)
Vale	38	1,509,934	349
South Oxon	49	1,829,474	516
West Oxon	48	1,884,287	724
Cherwell	58	2,043,047	697
Oxford	89	4,119,855	2,405
Grand Total	282	11,386,597	4,692

Did you know...
Organisations typically reduce their energy bills by 19% annually following our assessment advice.*



Meet our team

The ESOx team has a wealth of experience and practical know-how, and we're on a mission to transform businesses in Oxfordshire. We deliver tailored energy efficiency recommendations to meet your business-specific needs, giving you practical and effective energy advice that will have a measurable impact on your business.



Get in touch

Please feel free to get in touch with any enquiries you have, and reach out to **Alison Grunewald**, our Business Relationships Manager.

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*OxFutures Social Impact Report 2023 (PDF): On average, organisations reduce their energy bills by 19% per year when they implement the advice outlined in our assessments.