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Local Authorities must decarbonise UK public buildings ‘five times faster’ to meet net zero targets, report warns

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Analysis of public building energy usage finds government risks missing its 75% CO2 emission reduction target – by 101 years.

The UK government is currently missing one of its core Net Zero commitments to reduce CO2 emissions by 101 years, according to the Public Building Energy Efficiency Report.

CO2 emissions from public buildings need to be reduced five times faster than they’re currently falling to meet the target of ‘75% reduction in CO2 emissions by 2037’. The report projects that nine out of ten (91%) public buildings will need upgrading in the next seven years – if they’re to meet net zero targets.

The report, conducted by dedicated network access providers Neos Networks, examined the actual energy usage and efficiency of over 450,000 public buildings in England and Wales. It analysed their display energy certificates (DECs) and ‘operational ratings’ (annual CO2 emission kg per m^2), and highlighted the areas requiring immediate action and major investment in retrofitting public building stock.

On average across England and Wales, CO2 emissions per m^2 have fallen by 0.62% annually over the last 15 years. An annual reduction of 3.75% is needed to achieve the core goal of a 75% reduction in CO2 emissions by 2037, compared to the 2017 benchmark as outlined in the UK governments ‘Net Zero’* and ‘heat and buildings’** strategies.

However, there is a mixed picture across the local authorities. Public buildings in a third (32%) of local

authorities have seen an increase in their CO2 emissions per m^2. In some areas, operational rating emissions have risen by over 70%.

By contrast, more than two-thirds (68%) of local authorities brought emissions down. Merthyr Tydfil (-68.20%), East Hertfordshire (-54.23%) and Portsmouth (-54.35%) were the best performers, highlighting what's possible with targeted investment.

What's needed to improve energy efficiency in public buildings?

The data highlights the need for immediate action. Almost 13% of public buildings fall below the current minimum energy efficiency standards (MEES) EPC rating of E for non-domestic buildings, based on their latest display energy certificate score.

Central government funding for local authorities fell by over 50% in real terms between 2010–11 and 2020–21, according to government committee reports. The report findings reignite calls for government investment to support local authorities improving the energy efficiency of schools, NHS facilities and other public buildings.

William Harris, Senior Account Director, Public Sector at Neos Networks said *"These findings highlight the size of the task ahead if authorities are to meet targets.*

It's clear that greater support from central government is needed – and investment in network connectivity across public buildings is a crucial first step. This will enable more effective data collection and analysis – to make informed decisions about the public building stock in each area. Then there can be a targeted approach, guided by specialists, to investing in CO2 emission reduction measures where the need is greatest."

Daniel Scott, Vice President, Danfoss Climate Solutions, Northern Europe Region, Danfoss, said "*Around 40% of the energy consumed in cities can be attributed to buildings and one of the most effective steps that can be taken to reduce the CO2 emissions from public buildings is to make their energy systems more effective. Heating and cooling are the biggest energy consumers in public buildings and more efforts need to be made to prioritize solutions that use less energy overall.*

Excess heat is the world's largest untapped source of energy and yet there are very few efforts to reuse it. Many public buildings are located close to other sources of heat, such as data centres, supermarkets or Underground stations. There is tremendous potential for capturing this excess heat and reusing it to heat local public buildings. In the Greater London area alone, we have identified 648 eligible excess heat sources that could potentially share their heat through a district energy system. All of this is possible with technology that is readily available today. We urgently need to accelerate the progress of energy efficiency in public buildings. After all, the greenest energy is the energy we don't use."

Government targets –

- *Heat and buildings strategy – https://www.gov.uk/government/publications/heat-and-buildings-strategy*
    - *Key target – "Public sector buildings to achieve a 75% reduction in CO2 emissions by 2037, compared to the 2017 baseline"*
- *Net Zero Strategy – https://www.gov.uk/government/publications/net-zero-strategy*

- *Public Sector Decarbonisation Scheme – https://www.gov.uk/government/collections/public-sector-decarbonisation-scheme*

Data –

- *Data for public building display energy certificate (DEC) records obtained from The Energy Performance of Buildings Register — https://epc.opendatacommunities.org/*
- *DEC data includes certificates issued up to and including 29 Sep 2022*
- *The analysis covers England and Wales. Data for Scotland and Northern Ireland was not included in the dataset supplied on the government website*
- *Note: the Isles of Scilly and Carmarthenshire are not found in the analysis due to incomplete datasets*

Image credit: Neos Networks