Department for Energy Security & Net Zero

salix

Public Sector Decarbonisation Scheme

Phase 3b Summary Report

November 2023

Public Sector Decarbonisation Scheme

Phase 3b Summary Report

This report provides an overview of applications received and grants awarded through Phase 3b of the Public Sector Decarbonisation Scheme.

A list of all projects funded in Phase 3b of the Public Sector Decarbonisation Scheme, and short summaries of these, can be found on the Public Sector Decarbonisation Scheme gov.uk page.

Title image: Adur and Worthing Councils

Adur and Worthing Councils have been awarded £2,899,256 to support the decarbonisation of six public buildings. Of the six buildings, four are Grade II listed: Worthing Town Hall, Worthing Museum, Worthing Assembly Hall, and the Pavilion Theatre. The remaining two buildings are Portland House office building and Connaught Theatre, one of the oldest cinemas in the UK. Each building will be connected to the existing Worthing Heat Network, which uses a pump system to turn heat from wastewater in the local sewer into sustainable energy. Multiple improvements will also be undertaken across the sites, including the installation of solar panels, loft insulation, draught-proofing and new LED lighting.

Image by: Adur and Worthing Councils

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Executive Summary

Phase 3b of the Public Sector Decarbonisation Scheme builds on the £1.075 billion investment provided by Phases 1 and 2 of the Scheme and continues the support for public sector bodies to transition to low carbon heat and energy efficiency measures in their buildings. Phase 3b, like Phase 3a and Phase 2, has a stronger focus on heat decarbonisation than Phase 1, in line with the need to reduce direct emissions from public sector buildings to meet the UK's net zero goals. Applicants were required to look at the overall energy usage in their buildings and combine energy efficiency measures with the most appropriate low carbon heating measures, thereby encouraging them to consider the whole building in their decarbonisation measures.

Phase 3 of the Public Sector Decarbonisation Scheme is making available £1.425 billion of grant funding over the financial years 2022/23 to 2024/25 to public sector bodies to install low carbon heating measures that reduce direct carbon emissions from their buildings. £604 million of this funding has been awarded through the second Phase 3 application window, Phase 3b.

For Phase 3b, 560 applications were submitted with a combined value of over £1.48 billion. 231 projects were awarded funding, to be delivered by 183 public sector organisations.

Monitoring and evaluation of Phase 3b is being undertaken to check progress against planned milestones, to understand how well the scheme is delivering on its objectives, and to analyse how the scheme has performed against its intended impacts. The evaluation will also provide clarity as to how the scheme can evolve to continue delivering decarbonisation of the public sector and enhance its ability to support our wider net zero target.

1. Background

The Public Sector Decarbonisation Scheme provides grants for public sector bodies to fund heat decarbonisation and energy efficiency measures.

Phase 3 of the Public Sector Decarbonisation Scheme is making available £1.425 billion of grant funding over the financial years 2022/23 to 2024/25. The funding is being allocated through multiple application windows, with Phase 3b being the second instalment of this phase. The scheme is managed by the Department for Energy Security and Net Zero (DESNZ) and is delivered by Salix Finance, a DESNZ non-departmental public body.

Phase 3 is part of £2.5 billion total government investment on upgrading public sector buildings between 2020 and 2025.

Phase 3 of the Public Sector Decarbonisation Scheme follows Phases 1 and 2, which provided £1.075 billion in grants over the financial years 2020/21 and 2021/22. Phase 3a, the first Phase 3 application window, launched in October 2021 and is providing funding over the financial years 2022/23 to 2024/25. The second Phase 3 application window, Phase 3b, opened and closed to applications in October 2022 and is providing funding over the financial years 2023/24 to 2024/25. This report covers Phase 3b only. The summary reports for Phases 1, 2 and 3a are available on the Public Sector Decarbonisation Scheme gov.uk page.

Gorseybrigg Primary School and Nursery

Gorseybrigg Primary School and Nursery in Derbyshire has been awarded £320,775 to install an air source heat pump with a back-up biomass boiler. Solar panels will also be installed on the school's roof and the energy efficiency of the school will be improved through the installation of insulation and upgrades to the heating distribution pipework. Headteacher, Corinne Thornton said; "The children are incredibly excited to watch the project take shape and presented a wonderful assembly to all our pupils when the bid was accepted."

Image by: Gorseybrigg Primary School and Nursery

1.1 Policy Drivers

The Public Sector Decarbonisation Scheme supports delivery of the UK's ambitious goal to become net zero by 2050 and the Net Zero Strategy goal to reduce direct emissions from public sector buildings by at least 50 percent by 2032, and by 75 percent by 2037, compared to a 2017 baseline. The scheme will reduce carbon emissions from the public sector, contributing to meeting Carbon Budgets 4, 5 and 6. Funding for Phase 3 of the Public Sector Decarbonisation Scheme for the financial years 2022/23 to 2024/25 was confirmed through the Spending Review 2021 settlement.

1.2 Scheme Objectives

The objectives of Phase 3 of the Public Sector Decarbonisation Scheme are to:

- Support the transition to low carbon heating in public sector buildings
- Support the aim of reducing emissions from public sector buildings by 75% by 2037, compared to a 2017 baseline, as set out in the Net Zero and Heat and Buildings strategies.

Milton Keynes University Hospital NHS Foundation Trust

Milton Keynes University Hospital NHS Foundation Trust has been awarded £4,821,645 to support the decarbonisation of its buildings, including the MRI scanning unit, the orthopaedic unit, and the paediatric assessment unit. Old gas and oil fuelled boilers will be replaced by air source heat pumps, and the energy efficiency of the buildings will be increased through the installation of double-glazed windows, pipework improvements and the replacement of air handling units.

Image by: Milton Keynes University Hospital NHS Foundation Trust

1.3 Eligibility

Phase 3b was open to public sector bodies in England, including central government departments and their non-departmental public bodies, the NHS, schools (including maintained schools and academies), emergency services, further and higher education institutions and local authorities. Central government departments operating in areas of reserved policy (i.e., not devolved to Scottish or Welsh Governments or the Northern Ireland Executive) were also eligible to apply for funding for estates located anywhere within the UK.

To support the focus on heat decarbonisation, applicants were required to focus on replacing end-of-life fossil fuel heating systems with low carbon heating systems such as heat pumps and connections to low carbon heat networks. All applicants were required to include at least one measure to decarbonise part of or all the heating within a building with a low carbon heating system. Applicants were also required to take a whole building approach to decarbonising their buildings, looking at the overall energy usage and combining energy efficiency measures with the most appropriate low carbon heating measures.

Eligible measures could fall into four categories. It was compulsory to include a low carbon heating measure that reduces direct carbon emissions, such as heat pumps, electric heating or district heating. Secondly, other measures that reduce direct carbon emissions could be included, such as solar thermal, building fabric upgrades, piping insulation, mechanical ventilation, and heat recovery. Measures that reduce indirect carbon emissions (typically electricity savings) such as LED lighting and energy efficient ventilation were also eligible. Finally, measures that do not save carbon but enable the installation of measures that do, such as electrical infrastructure upgrades, metering and energy storage could also be included within an application.

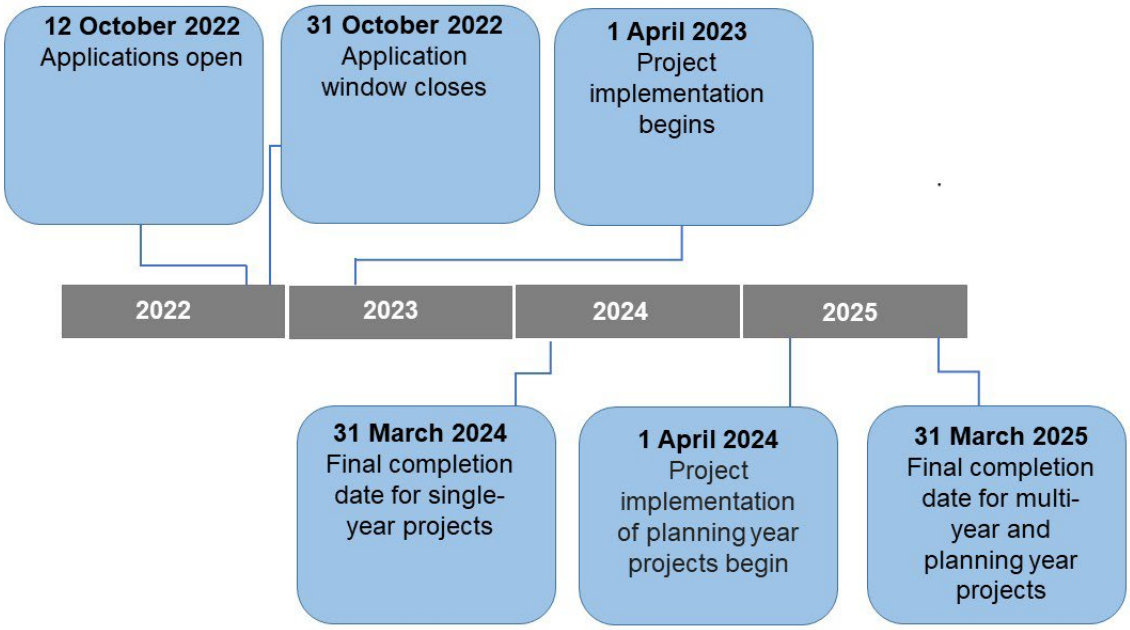
Funding was provided for the marginal costs of installing a low carbon heating system (i.e., the additional costs on top of the business-as-usual costs of replacing the existing fossil fuel heating system on a like-for-like basis).

For Phase 3b, the proportion of funding available for multi-year applications increased compared to Phase 3a of the Scheme, although multi-year funding for Phase 3b only covers two financial years rather than three.

The multi-year funding option better supports more complex projects where the works may need longer than one financial year to complete. For Phase 3b, the proportion of funding available for multi-year applications increased compared to Phase 3a. Phase 3b also introduced planning year applications for the first time (see section 1.5).

1.4 Timeline

Phase 3b opened for applications on 12 October 2022 and closed on 31 October 2022. All single-year projects are required to complete by 31 March 2024, with multi-year projects and planning year projects required to complete by 31 March 2025.



1.5 Changes to the Scheme

While Phase 3b was largely similar to Phase 3a with regards to eligibility and criteria, two important policy changes were implemented as a result of feedback and monitoring of previous scheme phases.

The first policy change was the introduction of planning year applications. Organisations were able to apply for funding for the financial year 2024/25 only, allowing them to use the 2023/24 financial year to plan their project to ensure successful implementation during the subsequent financial year.

The second policy change was the introduction of sector soft caps to support the allocation of funding across the public sector in line with the distribution of carbon emissions across the public sector. Sector caps were piloted across three areas of the public sector: health, education, and all remaining sectors including local authorities. Following stakeholder engagement and detailed data analysis, an upper limit to all sector caps was set at 35% of total phase 3b budget. Under this approach, the maximum funding a sector could be allocated was 35% and no sector's allocated funding could be lower than 30% of total Phase 3b funding.

Grants were awarded on a rolling basis in the order in which applications were submitted until the soft cap for a sector was reached. At that point, no more grants were awarded for that sector until all applications for other sectors had been allocated up to their own sector cap. Once grants had been awarded according to the sector soft caps policy, unallocated Phase 3b budget was then allocated to eligible applications in the order in which they were submitted, irrespective of their sector.

1.6 Budget

Phase 3 of the Public Sector Decarbonisation Scheme is making available £1.425 billion of grant funding over the financial years 2022/23 to 2024/25 through multiple application windows. Phase 3b is the second of these application windows and there was no minimum or maximum value for applications.

Funding is provided to grant recipients using Section 98 of the Natural Environment and Rural Communities Act 2006 and is paid to grant recipients by Salix Finance Ltd, the non-departmental public body responsible for delivering the Public Sector Decarbonisation Scheme on behalf of DESNZ.

1.7 Monitoring and Evaluation

Monitoring of Phase 3b is being undertaken to check progress against planned milestones. Monitoring data will also provide additional evidence for the scheme evaluation.

2. Applications to the scheme

Applications were assessed against the eligibility criteria set out in the scheme guidance. Applications that met the eligibility criteria (summarised in Section 1.3) were given an initial assessment according to the order they were received, in line with the sector cap principles. When the application window closed, Phase 3b had received a total of 560 applications, with an overall value of over £1.48 billion being requested across the two financial years.

Communities Academies Trust: The Polesworth Primary School, Tamworth

Community Academies Trust has been awarded £1,810,837 to decarbonise Polesworth School and Kingsway Primary School. Air source heat pumps and insulation will be installed at both schools. In addition, solar panels will be installed at Kingsway Primary School and electric heating and secondary glazing will be installed at Polesworth School. Ron Vernon, a Trustee of the school, said “This grant allows us to go above and beyond and utilise modern heat pump technology, improve insulation and install some solar generation. This will create an improved working environment for our pupils for generations to come while also decarbonising our heating and supporting the environmental education of the next generation.”

Image by: Communities Academies Trust

2.1 Applications by value

No minimum or maximum value was set for applications. Applications ranged in value from £11,512 to £66.9 million. 9.3 percent of applications were for less than £1 million, while 51 percent of applications were for over £10 million.

The median value of all applications was £795,142 and the average (mean) application value was £2,644,007.

Figure 1 below shows the total value of all applications by value band and figure 2 shows the total number of all applications by value band.

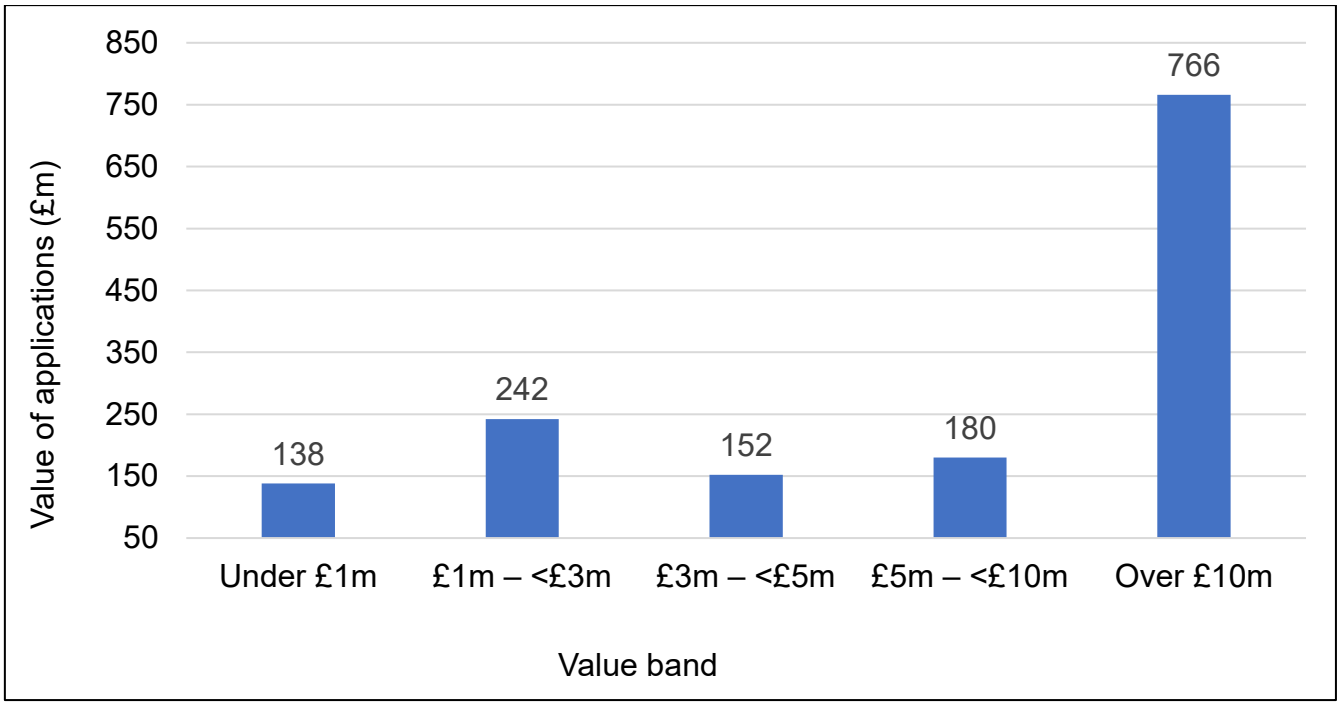


Figure 1: Total value of applications by value band

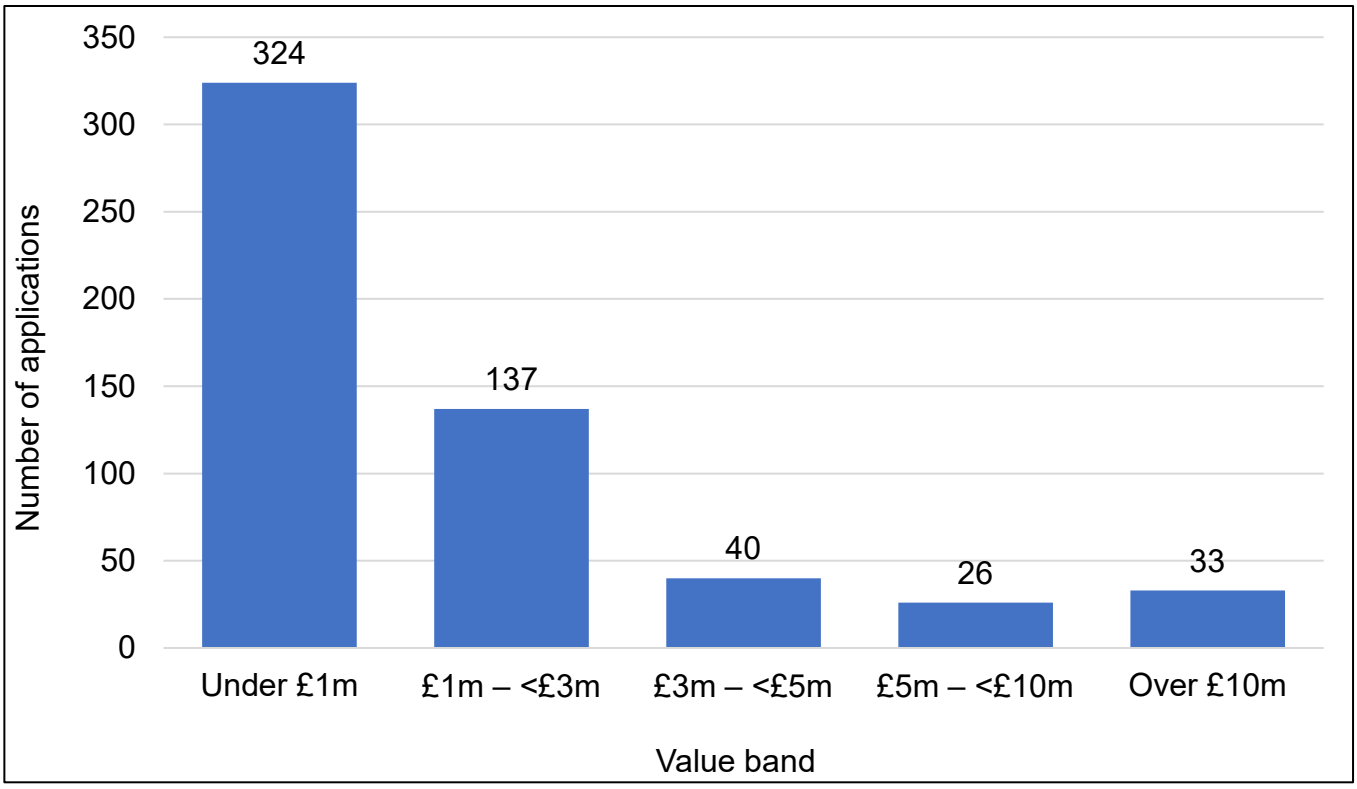


Figure 2: Total number of applications by value band

2.2 Applications by sector

Applicants can be grouped into seven different public sector categories: schools (including maintained schools and academies), further and higher education institutions, NHS, local authorities, central government, non-departmental public bodies and emergency services. There were no limits on the number of applications an organisation could submit, resulting in some organisations submitting multiple applications.

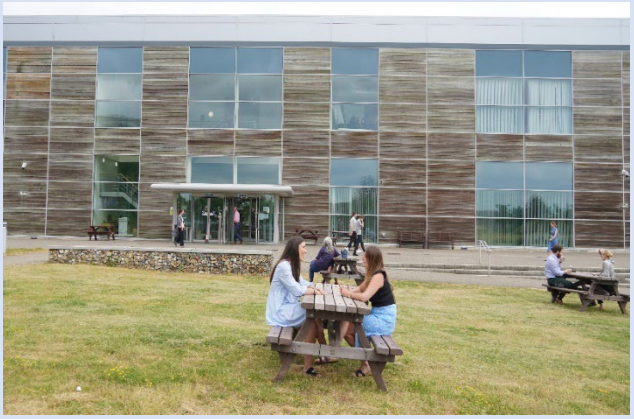
This section reports on the number of individual applications rather than the number of organisations which applied.

The Schools and Academies sub-section includes schools and academies funded from projects applied for by local authorities, in which the application solely covered school decarbonisation projects. However it should be noted that where maintained schools were part of local authority applications covering a range of sites that were not all schools these are included under the local authority section of figure 3 and figure 4.

The largest number of applications came from schools and academies, accounting for 32 percent of all applications. The NHS applied for the largest proportion of funding with a total application value of over £798 million, representing 54 percent of the value of all applications.

Figure 3 shows the number of applications by type of public sector organisation. Figure 4 shows the combined value of applications by type of public sector organisation.

South Norfolk District Council



South Norfolk District Council has been awarded £2,037,662 to install air source heat pumps at Diss Leisure Centre and the Council's headquarters at Horizon Centre, and to install a ground source heat pump at Kestrel House. Solar panels will also be installed at Diss Leisure Centre and Kestrel House to provide a source of renewable energy, and the energy efficiency of Diss Leisure Centre will be improved through the installation of external wall and roof insulation.

Image by: South Norfolk District Council

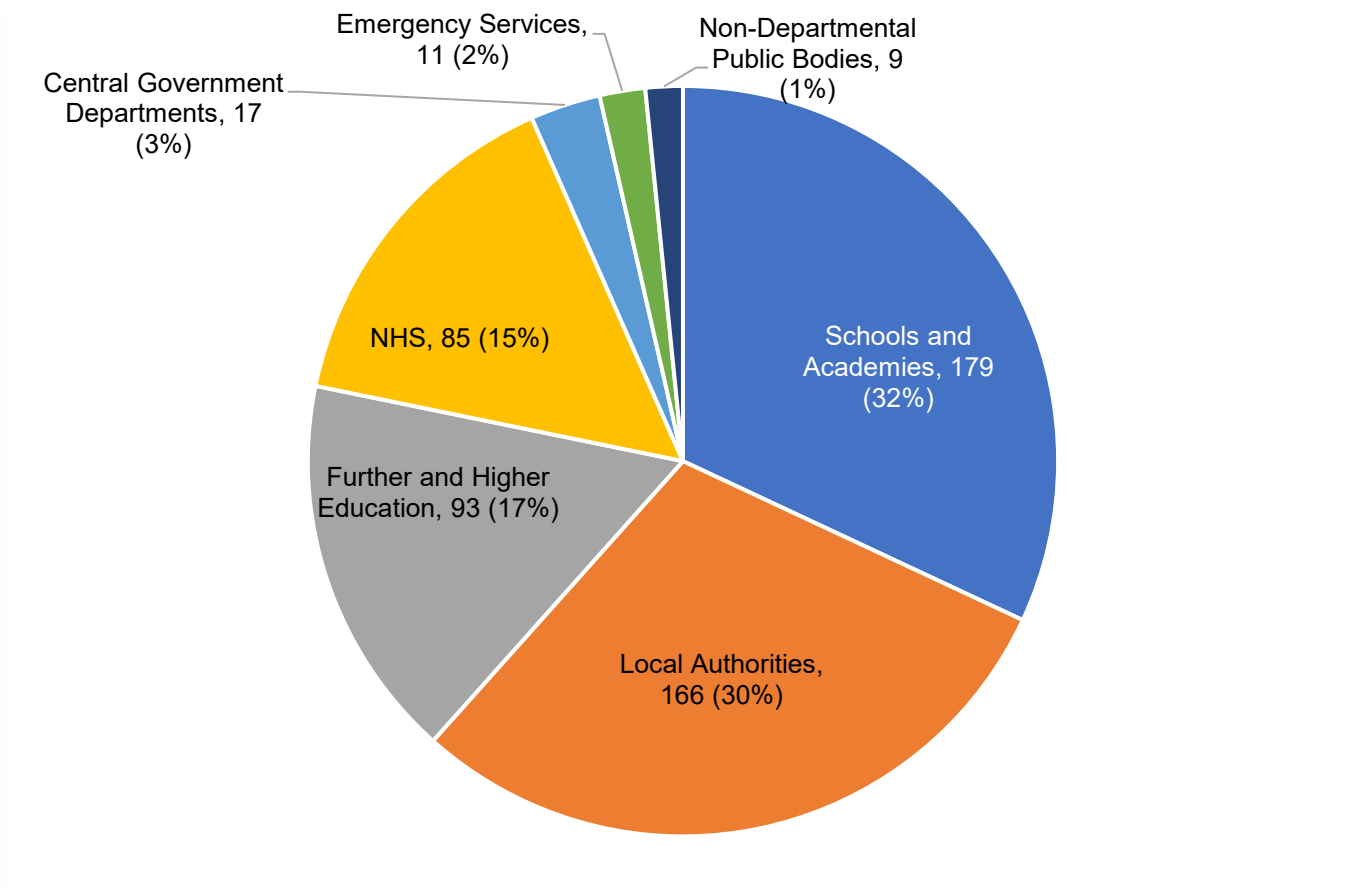


Figure 3: Number of applications by type of public sector

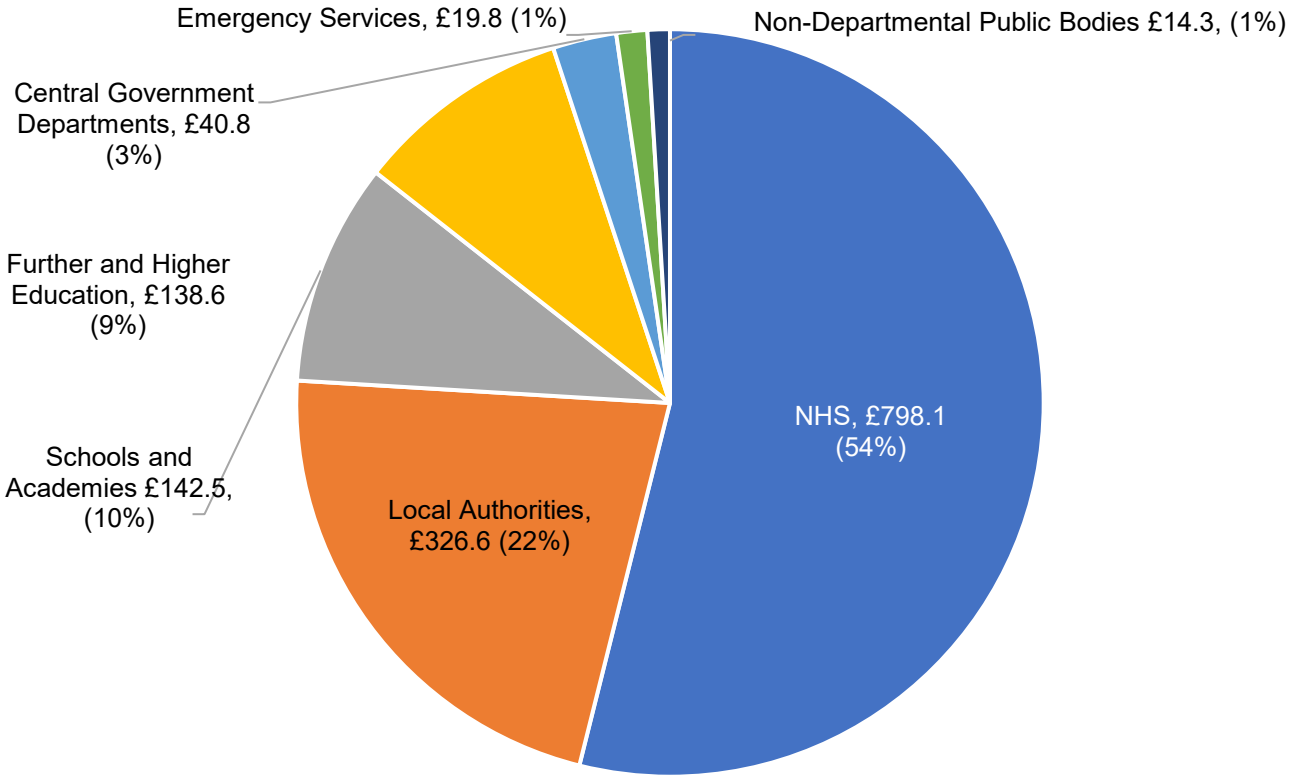


Figure 4: Value of applications by type of public sector

2.3 Applications by region

The scheme was open to public sector bodies in England. Central government departments operating in areas of reserved policy (i.e. not devolved to Scottish or Welsh Governments or the Northern Ireland Executive) were also eligible to apply for funding for estates located anywhere within the UK. As a result, five of the applications were from outside England and were applications for sites in Scotland and Wales.

Table 1: Number and value of applications across English regions, Scotland and Wales

Region	Number of applications	Value of applications
North East	31	£102,559,788
Yorkshire and the Humber	48	£215,257,099
North West	57	£139,613,056
East Midlands	48	£137,897,328
West Midlands	46	£163,779,502
East of England	73	£78,973,881
South East	70	£207,624,075
South West	73	£78,724,030
Greater London	102	£323,491,112
Across regions	7	£27,080,366
Scotland	3	£1,320,171
Wales	2	£4,323,525
Total	**560**	**£ 1,480,643,933**

3. Grants awarded

Phase 3b of the Public Sector Decarbonisation Scheme has allocated £604 million in grants. These grants were awarded to 231 projects, to be delivered by 183 different organisations.

3.1 Grants by value

One hundred and seventeen of the 231 grants were for less than £1 million. These make up 58 percent of all grants awarded but represent just nine percent of all funding. 14 grants are for £10 million or more, making up six percent of grants awarded but 44 percent of all funding. The median value of all grants is £753,885 and the average (mean) grant value is £2,481,886.

Figure 5 below shows the number of grants by value band and figure 6 shows the distribution of the overall values of grants by value band.

West Northamptonshire Council

West Northamptonshire Council has been awarded £7,074,540 to decarbonise four leisure centres: Daventry Leisure Centre, Moulton Leisure Centre, Brackley Leisure Centre, and Towcester Centre for Leisure. The gas heating systems currently heating the swimming pools at these leisure centres will all be replaced with air source heat pumps. Solar panels will also be installed at Daventry Leisure Centre and Moulton Leisure Centre to provide a source of renewable energy.

Image by: West Northamptonshire Council

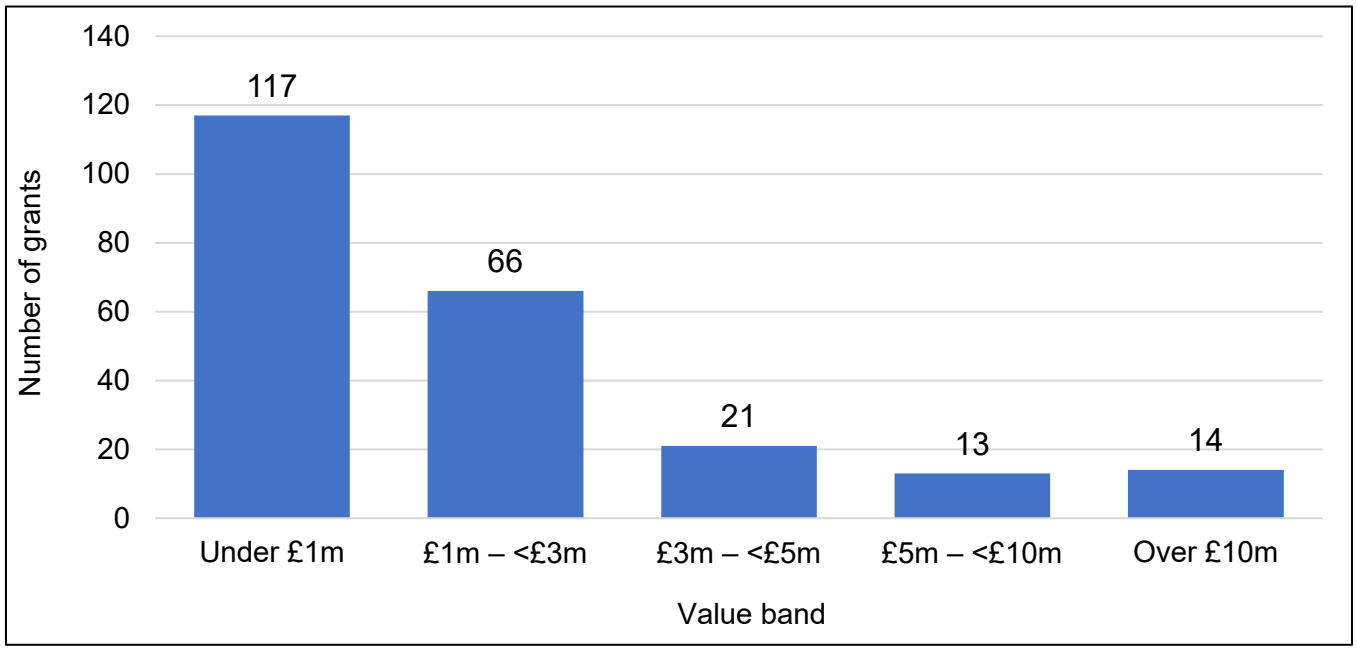


Figure 5: Number of grants by value band

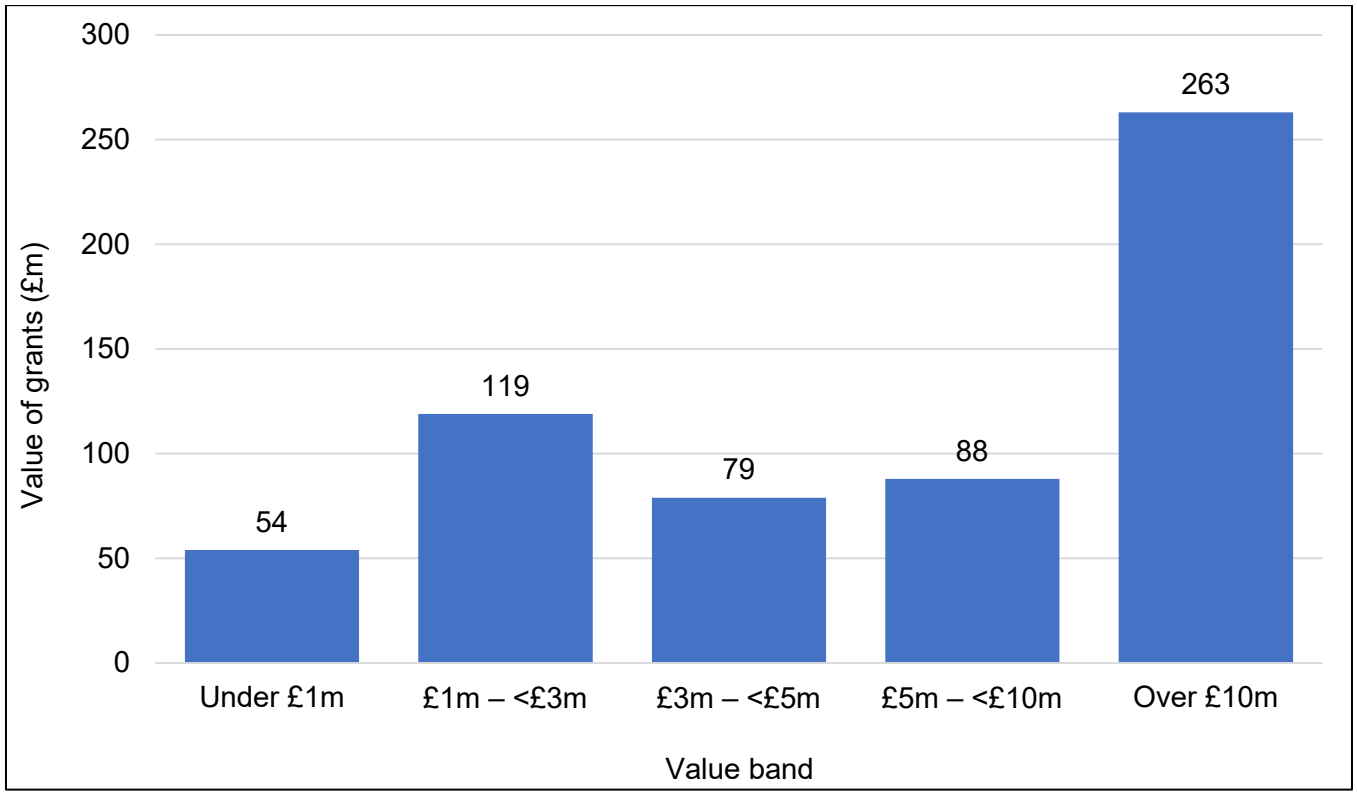


Figure 6: Total value of grants by value band

3.2 Grants by sector

Grants were awarded across all categories of the public sector: schools (including maintained schools and academies), further and higher education, NHS, local authorities, central government, non-departmental public bodies, and emergency services. The NHS received the largest proportion of funding, with over £225 million being invested through 22 grants. The NHS exceeded the upper limit of the sector cap at 37 percent due to reallocations of funding that were done due to some projects abandoning, in line with the agreement of how the sector soft cap principle.

Grants in the 'schools and academies' category include schools and academies where these are the grant recipients, as well as projects solely for the decarbonisation of schools and educational facilities where a local authority is the grant recipient.

Grants for local authorities which include schools and educational facilities alongside other public sector buildings, for example leisure facilities and administrative offices, are classified in the 'local authority' category of figure 7 and figure 8.

Figure 7 shows the combined number of grants awarded for each type of public sector organisation. Figure 8 shows the combined value of grants awarded for each type of public sector organisation.

The Royal Botanic Gardens, Kew

The Royal Botanic Gardens has been awarded £4,565,106 to decarbonise the Princess of Wales Conservatory, a glasshouse with ten climate zones at Kew Gardens in London, and six buildings at the Wakehurst estate in Mid Sussex, the home of the Millennium Seed Bank. The existing oil boilers will be replaced with air source heat pumps, electric point-of-use heaters and a biomass boiler, and energy efficiency measures will be installed across the estate. These include hot water electric point-of-use heaters, heating distribution improvements, draught proofing, motor replacement, loft insulation and building energy management systems.

Image by: Royal Botanic Gardens, Kew

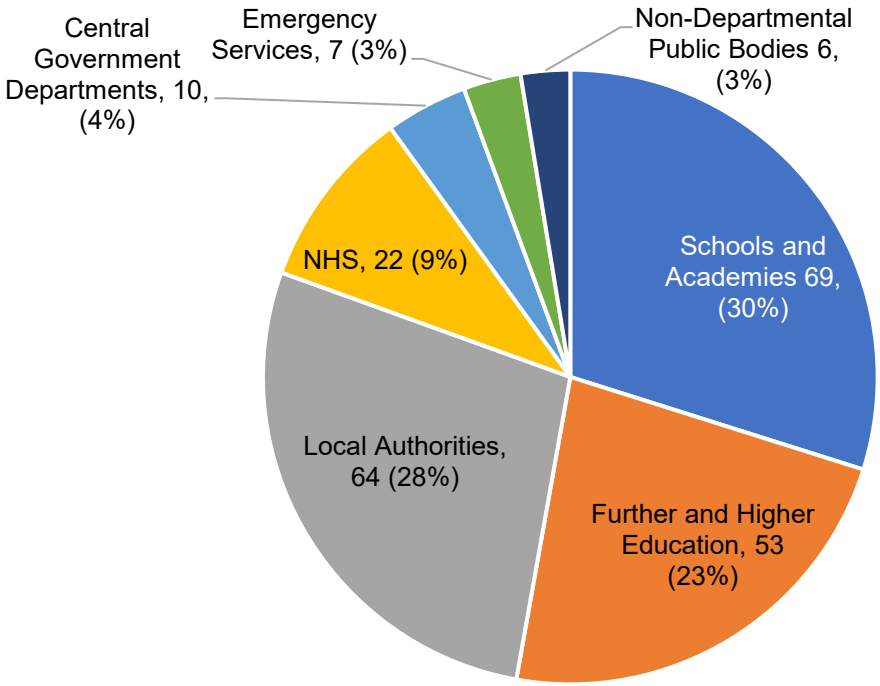


Figure 7: Number of grants awarded by type of public sector

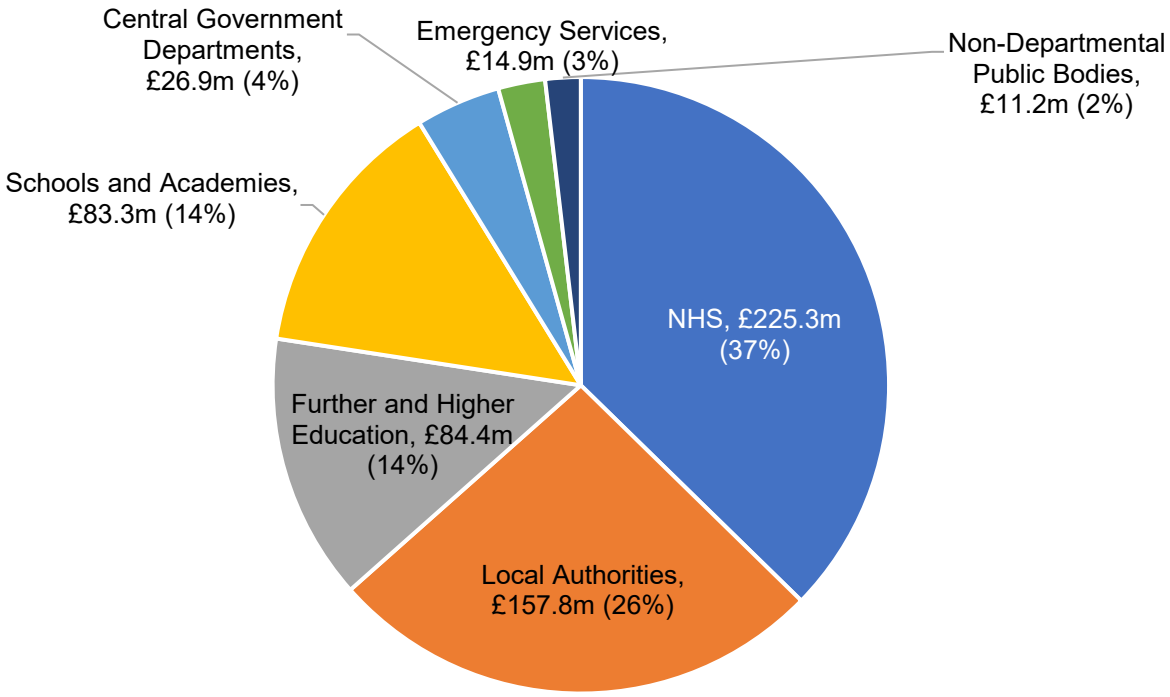


Figure 8: Value of grants awarded by type of public sector

3.3 Grants by region

Table 2 shows how many grants were awarded, with the combined value of these grants, for each region.

Table 2: Number and value of grants awarded

Region	Number of grants	Value of grants
North East	13	£39,743,164
Yorkshire and the Humber	18	£28,832,512
North West	26	£57,617,942
East Midlands	16	£60,601,602
West Midlands	17	£91,978,164
East of England	23	£23,118,759
South East	44	£135,611,713
South West	26	£40,791,288
Greater London	39	£97,406,950
Across regions	7	£26,688,898
Scotland	2	£1,221,871
Total	**231**	**£603,612,863**

3.4 Technologies

A wide range of technologies were eligible for funding through Phase 3b of the Public Sector Decarbonisation Scheme. Eligible heat decarbonisation measures included heat pumps, electric heating and connections to low carbon heat networks. Technologies which support future heat decarbonisation were also eligible - including upgrading electrical infrastructure, metering and battery storage. A wide range of energy efficiency measures were eligible for funding- including LED lighting, insulation, glazing, ventilation and building management systems.

Figure 9 below shows the number of projects installing each technology type. This data covers the numbers of projects installing one or more of each measure, rather than the overall number of measures installed. Projects may be installing multiple technologies.

Leeds City Council

Leeds City Council has been awarded £4,335,357 to decarbonise six primary schools, two children's centres, a day centre for the elderly, and St George's community hub. At all sites, the existing fossil fuel systems will be replaced with air source heat pumps and solar panels will be installed to provide a source of renewable energy. The energy efficiency of one of the primary schools, Seven Hills Primary School, will also be improved through the installation of loft insulation and a building energy management system.

Councillor Helen Hayden, Leeds City Council's Executive Member for Sustainable Development and Infrastructure said: "It is brilliant to see even more investment in essential green upgrades that will help Leeds to reduce its carbon emissions. Key public facilities including primary schools and children's centres will benefit from cheaper energy bills, enabling them to spend more on valuable community services and education."

Image by: Leeds City Council

For Phase 3b, the most commonly installed technologies are air source heat pumps, insulation, solar panels (solar photovoltaics), window glazing and LED lighting. Further information on these technologies is included below.

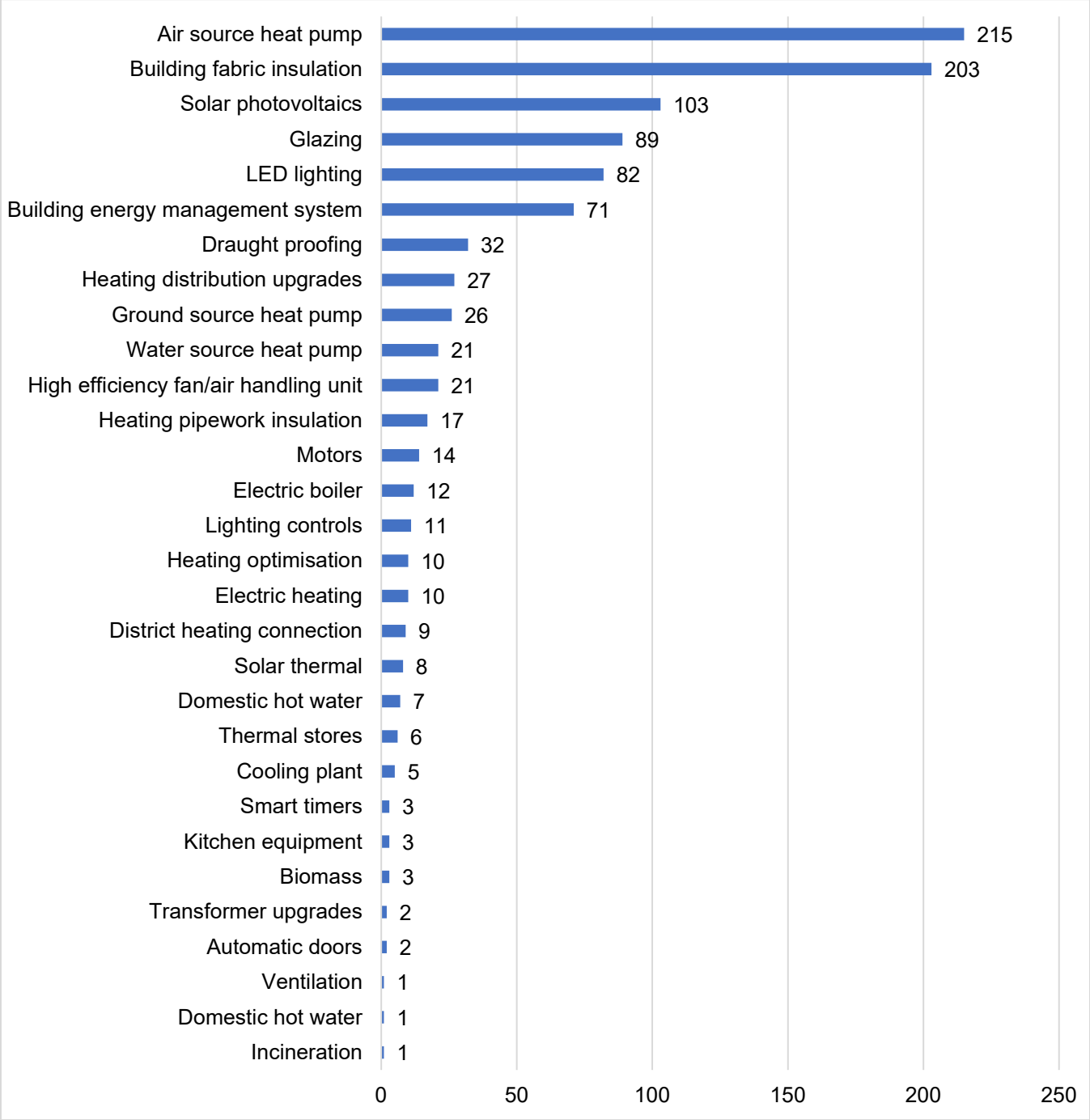


Figure 9: Number of projects installing one or more of each

Heat Pumps

Heat pumps transfer heat from a renewable source to another location such as the heating system of a building. Heat pumps are categorised by the heat source they use, which can be air, ground or water. Heat pumps obtain heat through pipes embedded in the source, where the heat is absorbed into a fluid. This is passed through a compressor to increase the temperature, and then transferred to the heating and hot water systems of the building.

Heat pumps are a very efficient replacement for traditional fossil fuel boilers. However, they produce heat at a lower temperature than traditional boilers and therefore work best when installed in buildings which are well insulated. Heat pumps installed through the Public Sector Decarbonisation Scheme have often been combined with energy efficiency measures to improve the insulation of the building, and with solar panels to provide a renewable source of electricity to power the heat pump.

Air source heat pumps

Air source heat pumps obtain heat from outdoor air and from the heat extracted from water vapour in the air. Many air source heat pumps are reversible units, capable of both heating and cooling buildings.

Ground source heat pumps

Ground source heat pumps extract heat from the ground using pipes buried under the ground outside. The ground remains at an almost constant temperature throughout the year, so the ground is an effective and constant source of heat. Ground source heat pumps require ground suitable for digging and space underground to install the pipes. If space is limited then a borehole can be used to install the pipes vertically, but this increases the cost of installation.

Water source heat pumps

Water source heat pumps extract heat from a body of water, such as a lake, river or stream, through pipes submerged in the body of water. To use a water source heat pump, the building must be near the water source, and the water source must be large enough to produce enough heat for the building. The efficiency of ground and water source heat pumps tends to be more consistent through the winter compared to air source heat pumps. This is because unlike air temperature, ground and water temperatures are not significantly impacted by day-to-day changes in the weather.

Solar Panels

Solar panels convert the sun’s energy into electricity, providing a renewable source of electricity which can be used to power buildings. Solar panels are made from layers of semi-conducting material, which create a flow of electricity when light shines on the material. They do not need direct sunlight to produce electricity, although the brighter the sunlight, the more electricity is generated.

Solar panels are often installed on the roofs of buildings, but they can also be free standing. Solar panels increase the generation of renewable electricity, reducing reliance on electricity produced through fossil fuels. They have often been installed alongside heat pumps, to provide a renewable source of electricity to power them.

Insulation

Insulating buildings helps minimise heat loss through the walls, windows, roofs, doors and floors when it is cold outside. This means that less energy is required to heat them in winter, improving their energy efficiency. The resulting lower electricity usage leads to a reduction in indirect carbon emissions and can also provide cost savings for organisations which can then be re-invested into decarbonisation technologies. Insulation is often installed alongside heat pumps to ensure the building is kept at an appropriate temperature, as heat pumps produce heat at lower temperatures than traditional boilers. Insulation also works to keep buildings cool in summer, reducing cooling loads.

LED lighting

LED lighting is more efficient at converting electricity into light than traditional fluorescent lighting, thereby improving the energy efficiency of a building. LED lighting also has a range of additional benefits, including a long life, ease of control and maintenance and high light quality.

Switching to LED lighting will reduce the energy consumption of a building. Saving energy reduces carbon emissions from electricity production while electricity is still produced from fossil fuels. In addition to this, the reduction in energy usage can provide cost savings for organisations which can then be re-invested into decarbonisation technologies.

Reaseheath College, Cheshire

Reaseheath College, an agricultural college in Cheshire, has been awarded £522,131 to replace old oil boilers at their Centrepoint building with an air source heat pump.

Reaseheath's Vice Principal, Graeme Lavery, commented: "We very much welcome this government grant, as it will enable us to take the first major steps in our plans to decarbonise our entire estate."

Image by: Reaseheath College, Cheshire

4. Conclusion

Phase 3b of the Public Sector Decarbonisation Scheme has allocated £604 million through 231 grants, awarded to 183 different organisations. This builds on the progress made in decarbonising the public sector through Phases 1, 2 and 3a of the scheme and paves the way for further decarbonisation of the sector.

The trial of the sector soft caps also proved to be a useful exercise in making sure there was a proportionate distribution of funding to the carbon emitted by that area of the public sector estate.

The next round of Phase 3 funding, Phase 3c, will invest in further projects over the financial years 2024/25 and 2025/26. This will continue supporting the government's aim of reducing direct emissions from public sector buildings by 75 percent by 2037.

London Borough of Camden

London Borough of Camden has been awarded £3,237,036 for three projects to upgrade Kingsgate Primary School, Hampstead Secondary School, the Grade II listed Highgate Library, West Hampstead library, Netherwood Day Centre, York Way vehicle depot and Waterlow Park visitor centre. Air source heat pumps will be installed in all buildings except for Waterlow Park visitor centre, where a ground source heat pump will be installed. Other improvements to be installed across the sites will include LED lighting, double glazing, dry wall lining, draught proofing, loft insulation and solar panels.

Image by: London Borough of Camden

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