



Public Sector Decarbonisation Scheme

Phase 3a Summary Report



April 2023

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

A list of all projects funded in Phase 3a of the Public Sector Decarbonisation Scheme, and short summaries of these, can be found on the [Public Sector Decarbonisation Scheme gov.uk page](https://www.gov.uk/public-sector-decarbonisation-scheme).

Title image: Birmingham Women's and Children's NHS Foundation Trust

Birmingham Women's and Children's NHS Foundation Trust has been awarded over £52 million through two grants to reduce emissions from Birmingham Women's Hospital, one of only two dedicated women's hospitals in the UK, and the Grade II listed Birmingham Children's Hospital. Ground and water source heat pumps will be installed in both hospitals, and the energy efficiency of the buildings will be improved through the installation of cavity wall insulation and double glazing.

Image by: Clinical Photography and Design Services, Birmingham Women's and Children's NHS Foundation Trust



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Contents

Executive Summary	4
1. Background	5
1.1 Policy Drivers	5
1.2 Scheme Objectives	5
1.3 Eligibility	6
1.4 Timeline	7
1.5 Budget	8
1.6 Monitoring and Evaluation	8
2. Applications to the scheme	9
2.1 Applications by value	9
2.2 Applications by sector	11
2.3 Applications by region	13
3. Grants awarded	14
3.1 Grants by value	14
3.2 Grants by sector	16
3.3 Grants by region	18
3.4 Technologies	19
Heat Pumps	21
Solar Panels	21
Insulation	22
LED lighting	22
4. Conclusion	23

Executive Summary

Phase 3a of the Public Sector Decarbonisation Scheme builds on the £1.075 billion investment provided by Phases 1 and 2 of the Scheme. Phase 3a continues the support for public sector bodies to transition to low carbon heat and energy efficiency measures in their buildings. For Phase 3a, like Phase 2, the scheme 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 providing £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. Over £613 million of this funding has been awarded through the first Phase 3 application window, Phase 3a.

For Phase 3a, 381 applications were submitted with a combined value of over £861 million. 231 projects were awarded funding, to be delivered by 170 public sector organisations.

Monitoring and evaluation of Phase 3a 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 supporting decarbonisation of the public sector and enhance its ability to support our wider net zero goal.

Christ's College Finchley

Christ's College Finchley, a secondary school in East Finchley, has been awarded nearly £2 million to replace their existing heating system with air source heat pumps. The energy efficiency of the school will also be improved through the installation of insulation, draught proofing, heating pipework insulation, and improvements to the hot water distribution systems.

Image by: Christ's College Finchley



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 providing £1.425 billion of grant funding over the financial years 2022/23 to 2024/25, with a budget of £475 million for each financial year. Phase 3 funding is being allocated through multiple application windows, of which Phase 3a is the first. The scheme is managed by the Department for Energy Security and Net Zero (DESNZ) and is delivered by DESNZ's non-departmental public body, Salix Finance Ltd ('Salix').

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 will provide 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. This report covers Phase 3a only. The summary reports for Phases 1 and 2 are available on the [Public Sector Decarbonisation Scheme gov.uk page](https://www.gov.uk/government/publications/public-sector-decarbonisation-scheme).

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.

1.3 Eligibility

Phase 3a 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 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 solar PV, 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.

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).

Funding was available for both single-year and multi-year projects. Regardless of the project timeframe, grant recipients were required to commence project delivery in the financial year 2022/23. A maximum of £475 million was available for the financial year 2022/23, with 85 percent (£403.75 million) to be allocated to single-year projects and the remaining 15 percent (£71.25 million) to be allocated to the first year of multi-year projects. Within the maximum budget of £475 million for each subsequent financial year, there was no prescribed limit on the amount of funding which could be allocated to multi-year projects for the financial years 2023/24 and 2024/25.

1.4 Timeline

Phase 3a opened for applications on 6 October 2021 and closed on 3 November 2021. All single-year projects are required to complete by 31 March 2023, with multi-year projects required to complete by 31 March 2024 for two-year projects and 31 March 2025 for three-year projects.



Office of the Police and Crime Commissioner for Gloucestershire

The Office of the Police and Crime Commissioner for Gloucestershire has been awarded over £1 million to install heat pumps in Gloucestershire Tri Emergency Centre, Coleford Police Station and Stroud Police Station. The energy efficiency of the buildings will also be improved through the installation of double glazing, draught proofing, loft insulation and distribution pipework improvements.



Image by: Office of Police and Crime Commissioner for Gloucestershire

1.5 Budget

Phase 3 of the Public Sector Decarbonisation Scheme is providing £1.425 billion of grant funding over the financial years 2022/23 to 2024/25 through multiple application windows. Phase 3a is the first of these application windows, providing over £613 million in grant funding. There was no minimum or maximum value of grant for which an applicant could apply.

Funding is provided to grant recipients using Section 98 of the Natural Environment and Rural Communities Act 2006 and is paid by Salix to grant recipients in arrears.

1.6 Monitoring and Evaluation

Monitoring of Phase 3a 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 assessed in the order in which they were received. When the application window closed, Phase 3a had received a total of 381 applications, with an overall value of £861.4 million being requested across all three financial years.

Nottingham University Hospitals NHS Trust

Nottingham University Hospitals NHS Trust has been awarded nearly £72 million through two grants to decarbonise Queens Medical Centre and Nottingham City Hospital. Water source heat pumps will be installed at Queens Medical Centre and air source heat pumps will be installed at Nottingham City Hospital. Both sites will also install energy efficiency measures to reduce energy consumption, including heating pipework insulation and improved building energy management systems, draught proofing at Nottingham City Hospital, and double glazing and energy efficient chillers at Queens Medical Centre. These measures will help the Trust to achieve the NHS's plan to reach net zero by 2040.



Image by: Nottingham University Hospitals NHS Trust

2.1 Applications by value

No minimum or maximum value was set for applications. Applications ranged in value from £21,168 to £62.2 million. 56 percent of applications were for less than £1 million, while four percent of applications were for over £10 million. The median value of all applications was £847,114 and the average (mean) application value was £2,261,012.

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

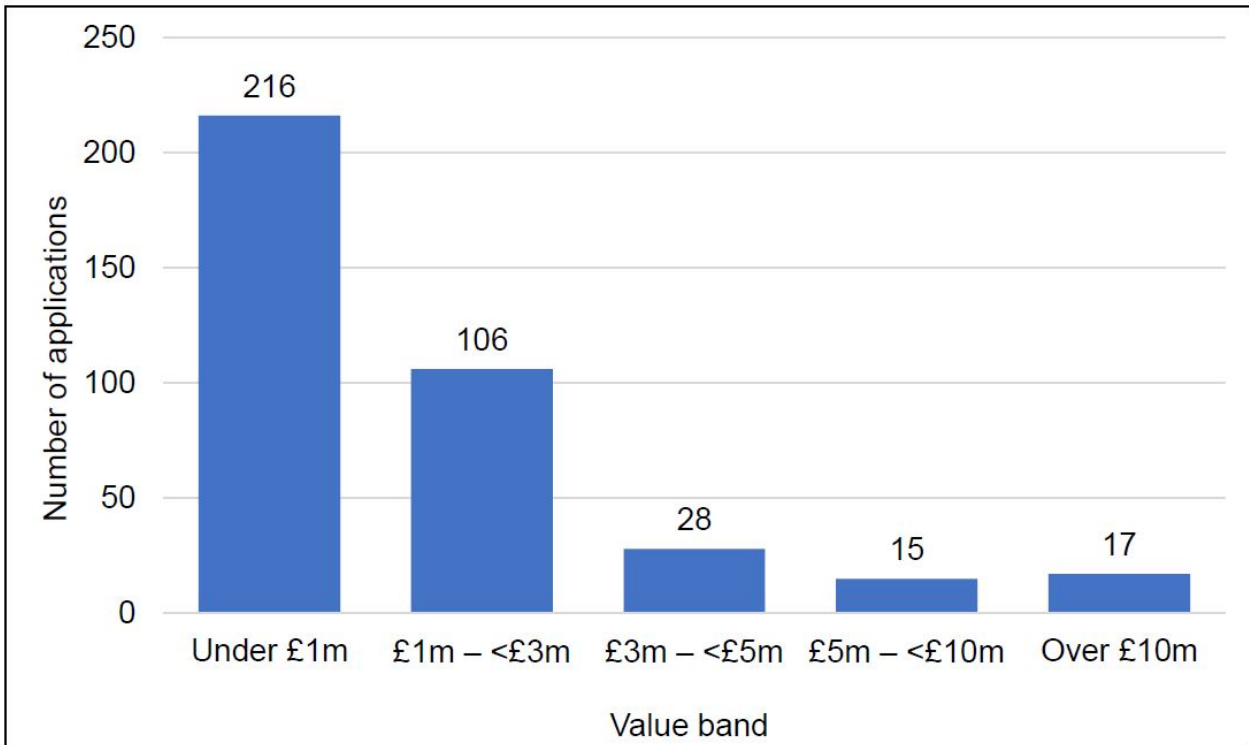


Figure 1: Number of applications by value band

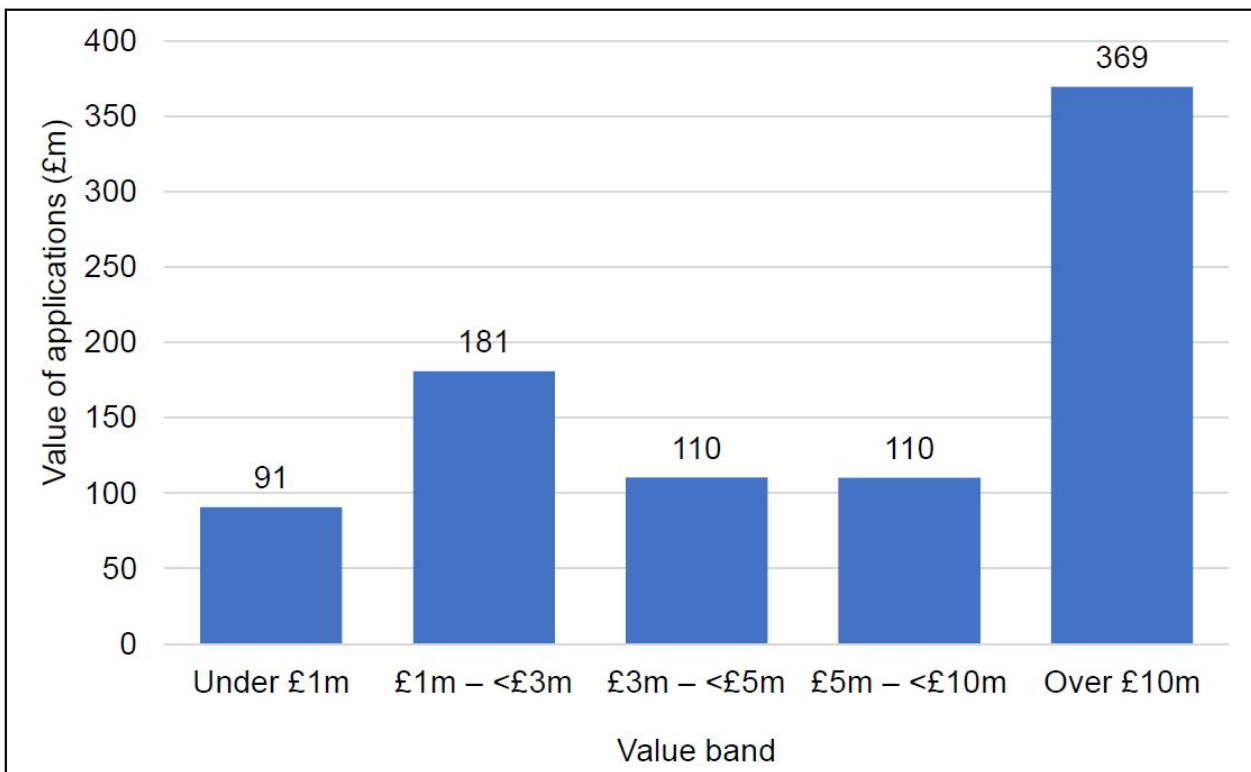


Figure 2: Total value of applications by value band

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, 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. It is important to note that local authorities were able to apply for funding across a wide range of buildings, including schools managed by the local authority. Therefore, applications for investment in schools include applications received directly from schools, and some applications submitted by local authorities. Please note that the schools and academies category in figures 3 and 4 below represents the applications received directly from schools only.

The largest number of applications came from local authorities, accounting for a third of all applications. The NHS applied for the largest proportion of funding with a total application value of £438.9 million, representing 51 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.

Star Multi-Academy Academy Trust: Monk Fryston Church of England Primary School, Leeds

The Star Multi Academy Trust has been awarded nearly £171,000 to decarbonise Monk Fryston Church of England Primary School in Leeds. A ground source heat pump will be installed to replace the existing fossil fuel heating system, alongside solar panels to produce renewable electricity and LED lighting to reduce energy consumption.

Image by: Salix Finance Limited



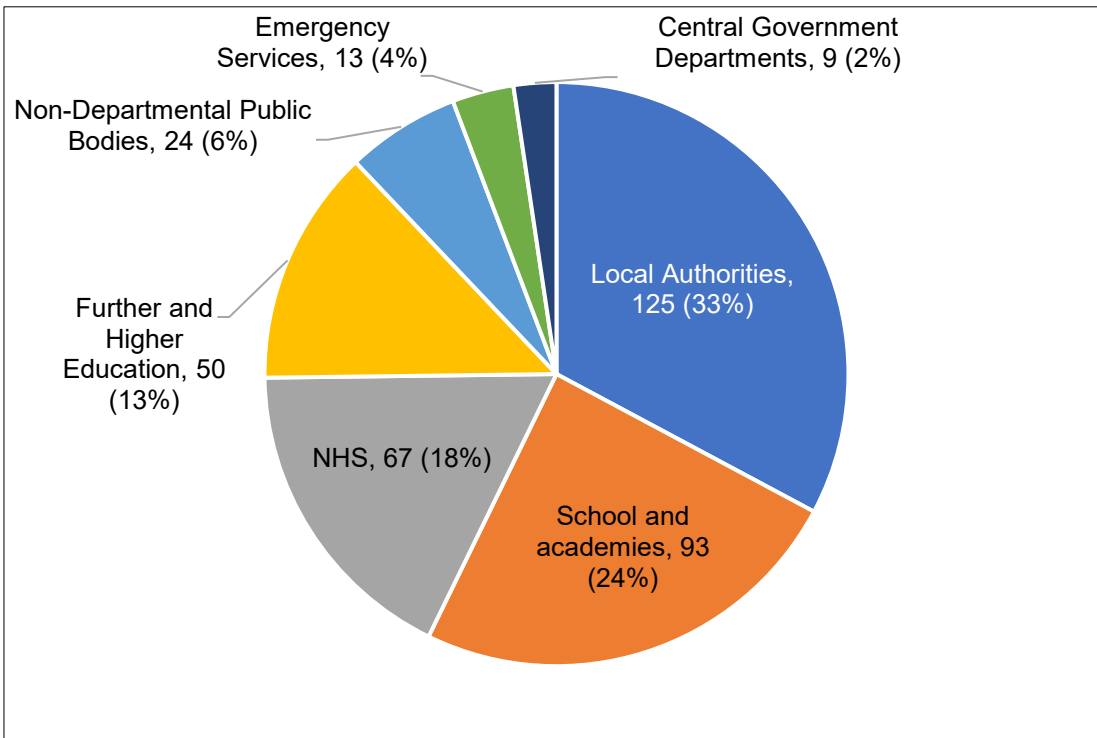


Figure 3: Number of applications by type of public sector

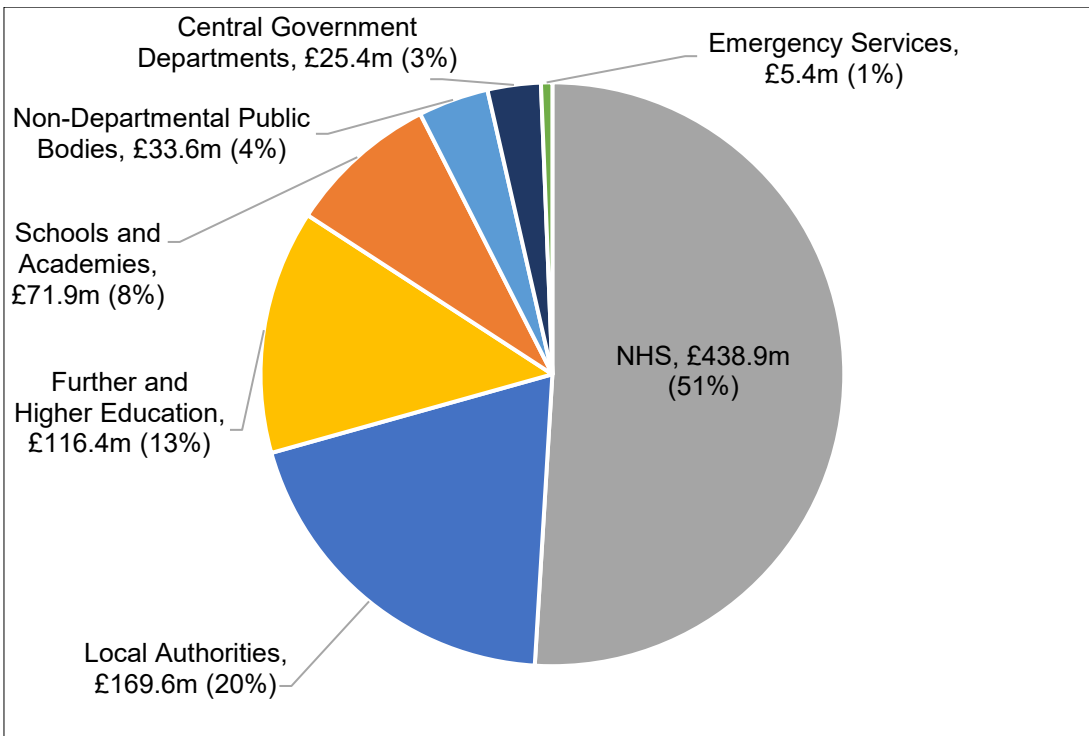


Figure 4: Value of applications by type of public sector

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, three applications were from outside England. These were all for applications in Scotland.

Table 1 shows the total number and value of applications across English regions and Scotland.

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

Region	Number of applications	Value of applications
North East	23	£24,280,468
Yorkshire and the Humber	29	£66,513,194
North West	38	£85,598,172
East Midlands	42	£120,024,676
West Midlands	31	£169,504,819
East of England	34	£57,835,874
South East	67	£107,506,995
South West	34	£46,819,304
Greater London	78	£167,530,284
Across regions	2	£8,397,436
Scotland	3	£7,434,162
Total	381	£861,445,384

3. Grants awarded

Phase 3a of the Public Sector Decarbonisation Scheme has allocated £613.2 million in grants. These grants were awarded to 231 projects, to be delivered by 170 different organisations.

It should be noted that £12.7 million of this funding, for the financial year 2022/23, was reinvested into more Phase 3a projects before Phase 3b opened for applications, following the abandonment of some projects due to unforeseen challenges to delivery.

3.1 Grants by value

134 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 50 percent of all funding. The median value of all grants is £747,808 and the average (mean) grant value is £2,654,555.

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.

Leeds Teaching Hospitals NHS Trust

Leeds Teaching Hospitals NHS Trust has been awarded over £9 million to reduce carbon emissions from St James's Hospital. Fossil fuel heating systems will be removed from many buildings across the hospital, including the Leeds Cancer Centre, the Sir Robert Ogden Macmillan Centre and the Thackray Museum of Medicine, and the buildings will be connected to a council owned district heating network. Roof insulation, draught proofing and double glazing will also be installed in some of the buildings to improve their energy efficiency.



Image by: Leeds Teaching Hospitals NHS Trust

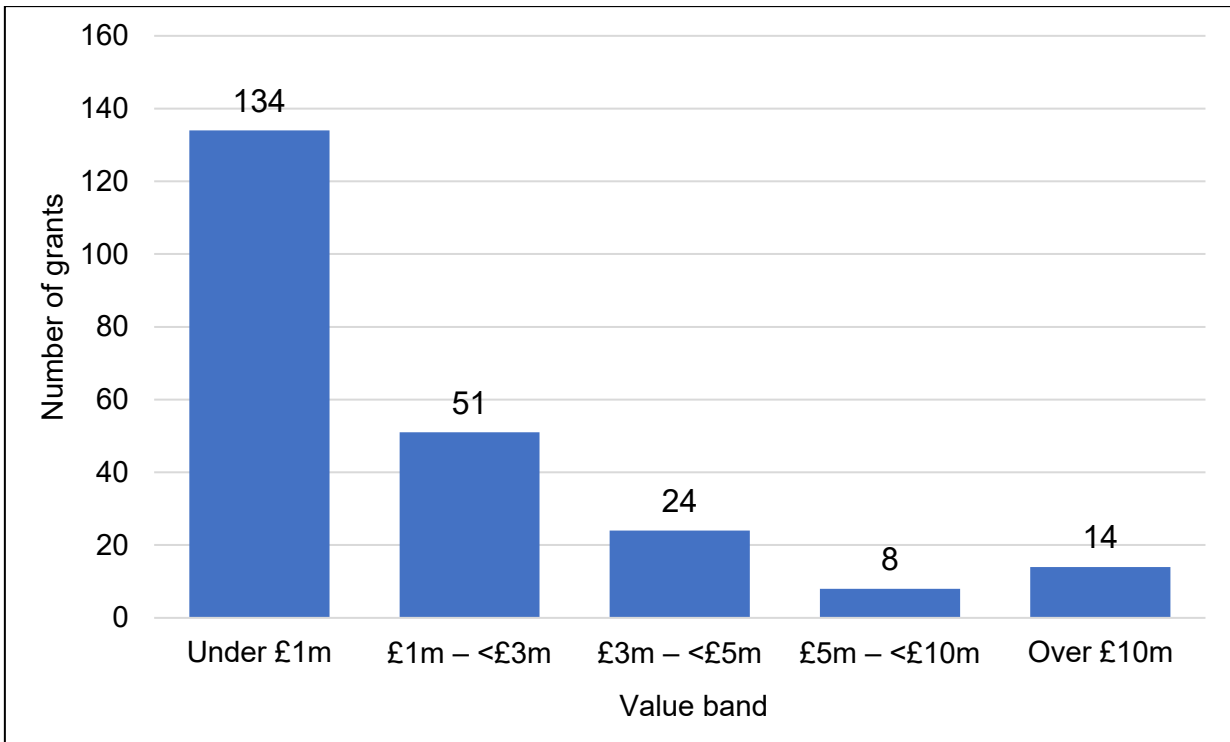


Figure 5: Number of grants by value band

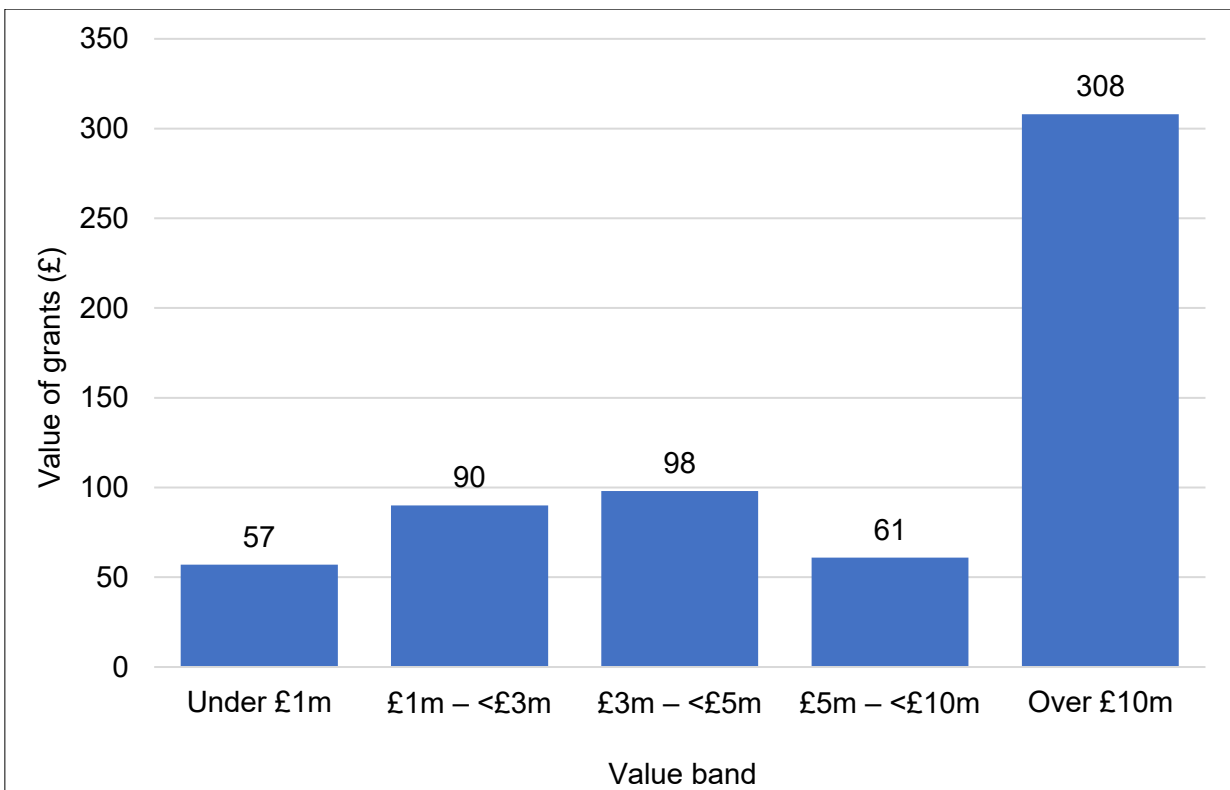


Figure 6: Total value of grants by value band

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. Local authorities received the largest number of grants, receiving 77 of the 231 grants. The NHS received the largest proportion of funding, with £361 million being invested through 38 grants.

It should be noted that local authorities are investing funds across a wide range of buildings, including schools managed by the local authority. The total investment in schools is therefore higher than the amount of funding awarded directly to schools as grant recipients. The figures below reflect the organisations that are the grant recipients rather than the organisations benefitting from the investment through the grants (i.e., the local authority rather than the schools in which a local authority will invest the grant funding).

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.

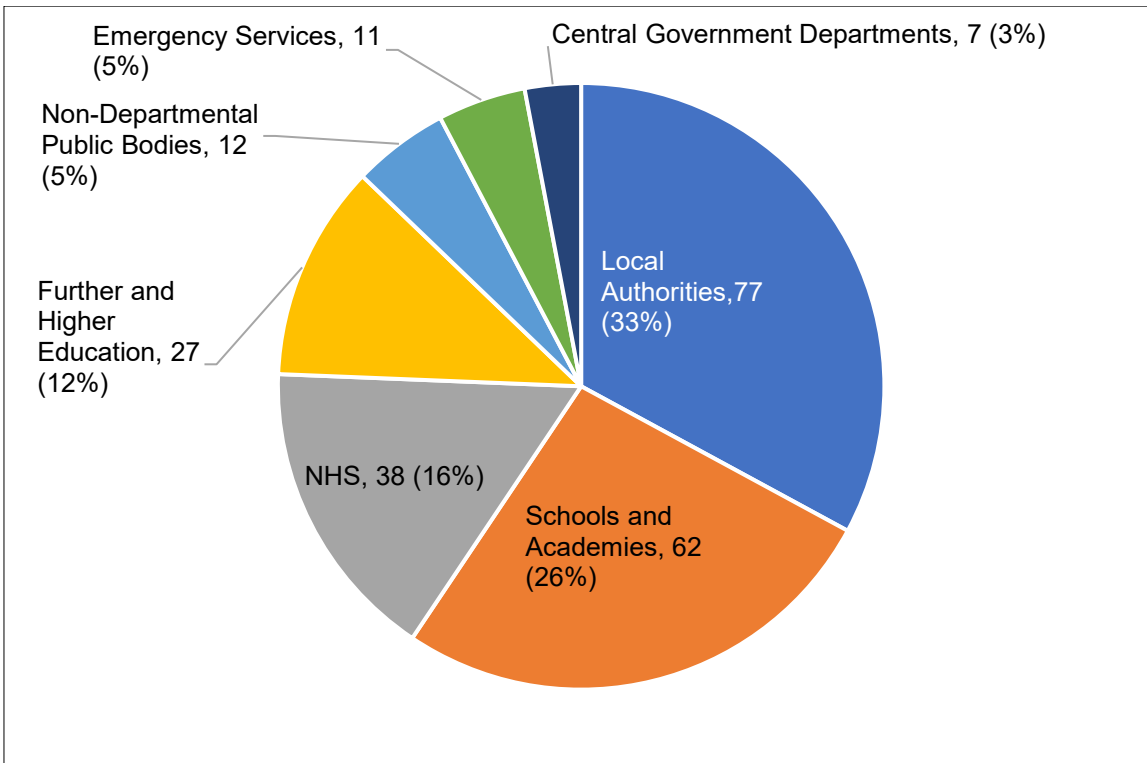


Figure 7: Number of grants awarded by type of public sector

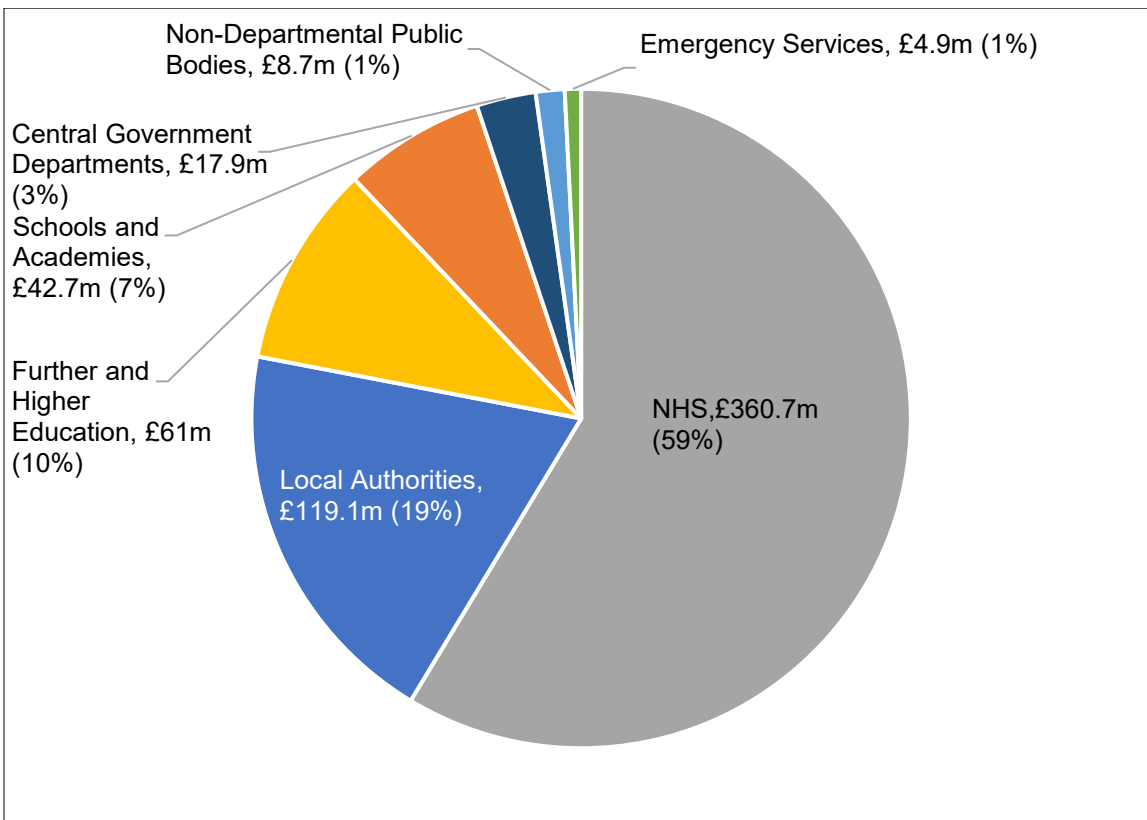


Figure 8: Value of grants awarded by type of public sector

3.3 Grants by region

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

Table 2: Number and value of grants awarded across English regions and Scotland

Region	Number of grants	Value of grants
North East	9	£7,034,779
Yorkshire and the Humber	22	£45,251,792
North West	26	£62,005,700
East Midlands	25	£105,671,500
West Midlands	20	£154,104,538
East of England	23	£29,833,843
South East	36	£59,914,526
South West	23	£49,305,311
Greater London	42	£91,455,312
Across regions	2	£8,059,769
Scotland	3	£565,021
Total	231	£613,202,091

3.4 Technologies

A wide range of technologies were eligible for funding through Phase 3a 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.

Hertfordshire County Council

Hertfordshire County Council has been awarded over £2 million to install heat decarbonisation and energy efficiency measures in eight primary schools. Air source heat pumps will be installed to replace end-of-life boilers, and solar panels will be installed to provide a source of renewable energy. The energy efficiency of the schools will also be improved through the installation of LED lighting, cavity wall insulation and double-glazed windows.



Image by: Hertfordshire County Council

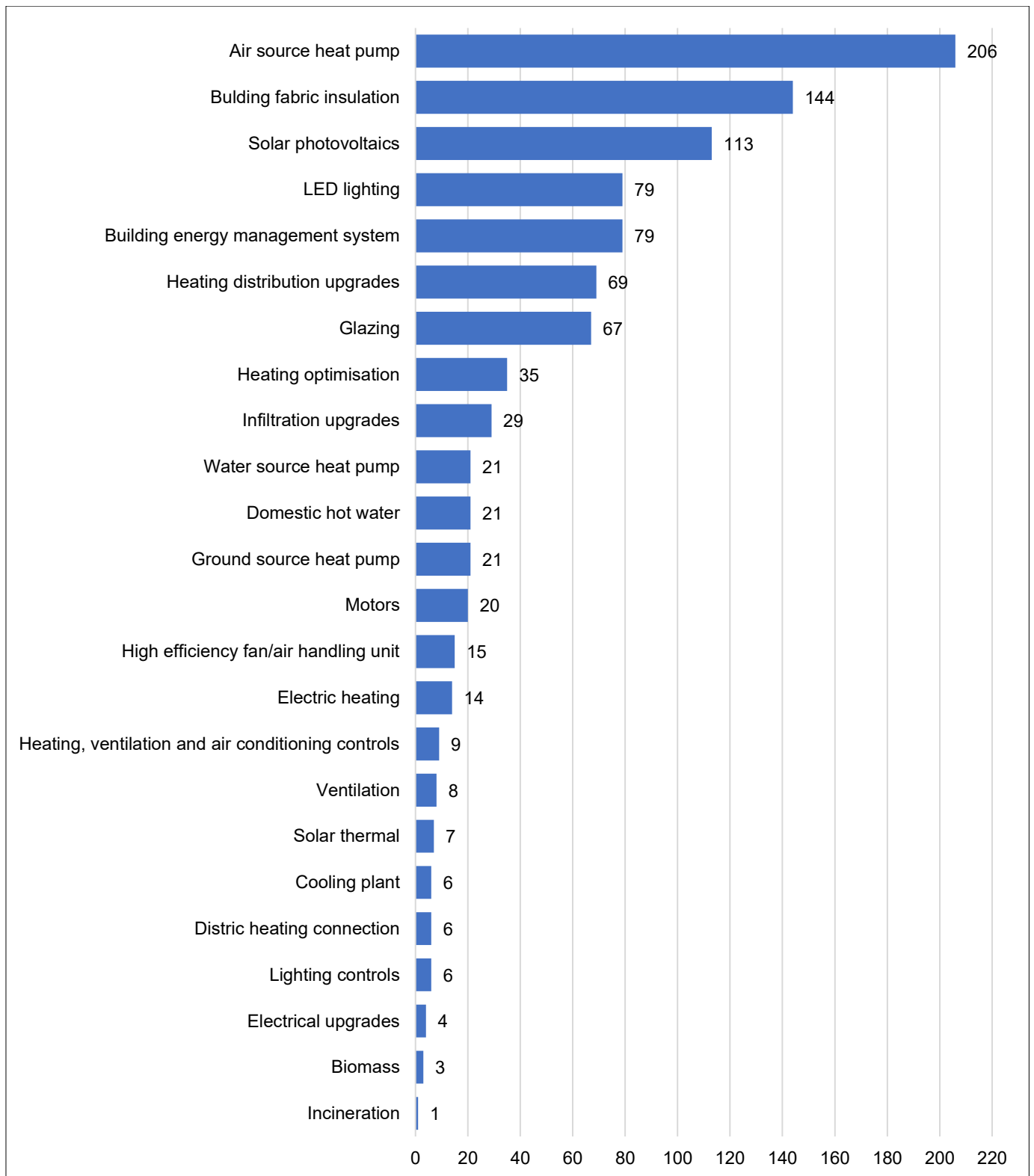


Figure 9: Number of projects installing one or more of each technology

Commonly installed technologies are heat pumps, insulation, solar panels, and LED lighting. Further information on these technologies is included below.

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.

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.

4. Conclusion

Phase 3a of the Public Sector Decarbonisation Scheme has allocated over £613 million through 231 grants, awarded to 170 different organisations. This builds on the progress made in decarbonising the public sector through Phases 1 and 2 of the scheme and paves the way for further decarbonisation of the sector.

The next round of Phase 3 funding, Phase 3b, will invest in further projects over the financial years 2023/24 and 2024/25. This will continue supporting the government's aim of reducing direct emissions from public sector buildings by 75 percent by 2037.

Exmoor National Park Authority

Exmoor National Park Authority has been awarded over £115,000 to reduce carbon emissions from Pinkery Outdoor Education Centre, a centre providing residential courses for schools and groups to learn about the National Park. The centre is off-grid and has no mains gas, electricity, or water, and currently contributes roughly 20 percent of the Authority's emissions. The old oil boiler currently providing heat to the centre will be replaced with a biomass boiler, and solar panels will be installed to provide renewable electricity to power the building. Double glazing, LED lighting and a building energy management system will also be installed to reduce the building's energy consumption.



Image by: Exmoor National Park Authority

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