

Guidance on changes to the Recycling Funds

October 2021

This guidance provides an overview of the changes to English Recycling Funds. Welsh and Scottish Recycling Funds are not affected by these changes. An updated Recycling Fund Manual which reflects these changes will be available shortly.

1. The Recycling Funds

Since 2004, the public sector has achieved significant carbon savings through their Salix Recycling Funds. Historically the Recycling Fund model has worked well for energy efficiency projects that provide a good return on investment i.e., LED lighting and other electricity saving projects. This has allowed the funds to be recycled three times on average.

Looking forwards, to achieve the Government's Net Zero goal by 2050, we urgently need to address how to decarbonise heat in our public buildings. Therefore, the Recycling Fund scheme is being extended to align with the government's decarbonisation of heat policy and further support our clients to achieve their carbon emission targets. The criteria for the scheme has been re-designed to bring focus to this challenge and to support clients on their heat decarbonisation journey.

2. Key aims

For the remaining lifespan of the Recycling Funds to March 2025, the Fund criteria will aim to address the carbon emissions produced by heating our public buildings. To help clients reach net-zero we need to understand how the fund will be used to help public buildings become more energy efficient, either directly through the installation of low carbon heating measures, for example insulation, glazing, heating controls, and heat pumps, or indirectly, through preliminary works to prepare public buildings for future low carbon heating projects. Accordingly, a requirement to produce a three-year plan for utilising the available funding has been introduced; the purpose of the plan is to address how each project is linked to a wider heat decarbonisation strategy.

3. Overview of Recycling Fund changes

To achieve the revised policy goal of using Recycling Funds to support the decarbonisation of heat, the following changes have been introduced:

1. All Recycling Fund clients are required to submit a three-year plan for utilising their available funding by March 2022. See Section 4 for further details.

From April 2022:

2. To be eligible projects must include either:
 - i. A measure that directly contributes to the heat decarbonisation of a building by installation of a low carbon heating technology and/or building fabric upgrades – see Appendix 2
 - ii. Or alternatively, justification for how electricity reduction measures, which do not directly contribute to the heat decarbonisation of a building but reduce overall energy demand, will support a wider heat decarbonisation project in the future.
3. The cost to save a tonne of carbon (CO₂e) over the lifetime of the project must be no more than £500/tCO₂eLT, which will be automatically calculated on SERS (see Section 5.).
4. Fossil fuel heating technologies, such as boiler replacements and CHP, have been removed from the technology list.

The payback criteria for the funds have not changed:

1. University Revolving Green Fund (RGF 1 & 4) projects in England can apply for a payback period of:
 - Eight years or less when using their main fund; or
 - Ten years or less when using their client additional fund.
2. Local Authority and NHS Recycling Fund projects in England can apply for a payback period of 10 years or less.

It will not be possible to provide a Top-up for any Recycling Fund.

For a full list of all compliance criteria please see the Fund Manual (updated October 2021). Where possible, Recycling Fund clients are encouraged to take a 'whole building' approach to decarbonising their heating. This is where all the factors that contribute to a building's energy consumption are considered together to identify the most cost-effective way to achieve the objective. For example, investment in improving the insulation levels of the building fabric will reduce the overall size of the low carbon heating plant required, as well as save on fuel bills. Also, investment in reducing the peak electricity consumption, such as through installation of more energy efficient lighting, can reduce the need to upgrade a building's electrical infrastructure to accommodate the installation of a heat pump, (See Appendix 2 for examples of eligible technologies).

Measures that will reduce the level of heat demand such as building fabric insulation and windows can be combined with measures to reduce high electrical load. Combining technologies as part of the same project will create an average figure for the compliance criteria of £500/tCO₂eLT. This will allow for a greater range of technologies to be used effectively across the project. Please see our Carbon Cost Threshold Section 5. for more details.

Projects which only incorporate electrical load reduction measures are still eligible under the new criteria provided sufficient information is given to justify how these will support heat decarbonisation in the future. In many cases this could be a Heat Decarbonisation Plan and guidance on these can be found [here](#) on the Salix Website.

Clients are also encouraged to include measures that help them manage their ongoing energy consumption through smart monitoring technologies such as smart metering.

4. Three-year plan

To understand your plans for the Recycling Fund and how Salix can better support you we are asking all clients to submit a three-year plan **by 31st March 2022** outlining how they intend to utilise their available spend in line with the new criteria. Your Relationship Manager will be able to provide you with an overview of your available spend for the remaining lifetime of the fund, i.e. the financial years 2022/23, 2023/24 and 2024/25. All projects must complete by March 31st, 2025.

The plan should include an overview of the projects scheduled for each financial year, including technology type, site, estimated cost and if it does not save Direct Carbon, an overview of how it will prepare the site for a future Heat Decarbonisation Project.

For further guidance on how to go about identifying projects, please see the three-year plan guidance in Appendix 3.

The vast majority of our public sector buildings are reliant on fossil-fuel heating systems, and many of these are coming to the end of their working lives. Here is our step-by-step guide on how you can take a successful 'whole building' approach for your project.

Step 1:

- Identify all the energy using systems consuming energy in your building, e.g.:
 - Heating
 - Lighting
 - Hot water
 - Cooling

Step 2:

- Identify all the areas of energy wastage, e.g.:
 - Uninsulated walls, roofs and windows
 - Draughts
 - Poor controls

Step 3

- Identify where energy efficiency investments can be made to reduce the overall energy demand of the building. Consider the impact on all systems together, e.g.:
 - How does increasing air tightness impact on ventilation systems?
 - Can control systems be upgraded to allow heating and cooling systems to be better integrated?

Step 4

- Select the most appropriate low carbon heating measure. Typical considerations include:
 - Is there a local district heating network?
 - Will the heat distribution systems require upgrading?
 - Can the electrical system be upgraded to support a heat pump?
 - How will hot water demand be met?

Step 5

- Bundle the selected low carbon heating and the energy efficiency together with associated enabling works and additional supporting measures e.g.:
 - Creation of temporary access routes for construction
 - Electrical system upgrades to ensure there is enough power supply to accommodate the new low carbon heating system
 - Upgrade traditional metering to smart meters
 - Site establishment

Step 6

- Assess the costs and carbon emissions savings of the bundle of measures against the £500/tCO₂eLT threshold. If the value of the bundle is higher than this, consider the following options:
 - Add additional measures that focus on carbon emission savings
 - Source alternative finance to part fund costs above the £500/tCO₂eLT threshold
 - Consider the benefits smart controls can have on matching energy use to demand.

5. Carbon Cost Threshold

To ensure projects deliver emissions savings in a cost-effective manner, projects must fall within a maximum carbon cost threshold of £500 per tonne of carbon emissions saved over a project's lifetime.

Public Sector Bodies are actively encouraged to include measures that will reduce overall carbon emissions, facilitating a 'whole building' approach to heat decarbonisation. The increase to £500 tCO₂eLT has been designed to give the Recycling Funds the flexibility to create bundles tailored to the needs of their estates.

How the cost per tonne should be calculated for projects:

$$\text{£500 tCO}_2\text{eLT} \geq \frac{[\text{£ Full capital cost of project} - [(\text{£}) \text{ Additional client contribution}]}{\text{Total carbon emissions saved over the lifetime of the project (tCO}_2\text{eLT)}}$$

Calculating the full capital cost of a project

Salix's compliance tool and SERS system will automatically calculate the cost to save a tonne of carbon for a project when the Fund Manager adds the details of measures they wish to apply for. The methodology and its sequencing used in the Business Case and SERS Form has been set out below and will be helpful for Fund Managers in determining the appropriate bundle for a particular site.

The cost of low carbon heating affected by heat efficiency measures:

- The full costs of heat energy efficiency measures should be calculated before calculating the cost of the low carbon heating source. This is because installation of heat energy efficiency measures (e.g., insulation) reduces the overall heat demand of a building and therefore reduces the size (and hence cost) of the heating plant required, as well as the need for any electrical upgrades in the case of a heat pump.
- As part of a 'whole building' approach, applicants are encouraged to maximise heat energy efficiency before installing a low carbon heating source as this is often both more affordable and more effective than installing a low carbon heating source on its own.

The cost of electricity saving energy efficiency in a bundle:

- Electrical saving energy efficiency helps to mitigate the impact of any increase in operating costs resulting from electrification of heat. Projects will only be eligible for the full funding cost of measures which save electricity, such as LED lighting, if they are bundled with heat decarbonisation measures or linked to a wider decarbonisation strategy.

The cost of enabling and ancillary works in a bundle:

- The costs of reasonable enabling and ancillary works may be included in the bundle, provided they are directly linked to the core measures being installed, and these will be reviewed for value for money.

Calculating the carbon emissions savings of a bundle:

Total carbon emissions savings over the lifetime of a project:

- Carbon emissions savings should be calculated based on the lifetime of each carbon emissions saving measure - see Appendix 2.
- Carbon savings from a low carbon heating measure should be calculated after heat energy efficiency measures have reduced overall carbon emissions first, to ensure savings are not double counted.

It is recognised that while replacing fossil fuel heating systems with low carbon heating is assumed to decarbonise the heat within a building, the building itself still may not be fully decarbonised as there may be instances where residual direct emissions from fossil fuels may occur due to catering and other activities.

Appendix 1 – Definitions

Direct carbon means carbon emissions that are emitted either directly within an organisation’s site boundary from combustion of fossil fuel, or where district heat networks are used are emitted from combustion of fossil fuel in a district heating plant room. For most public sector organisations this will primarily be fossil fuels (gas, oil and coal) which are combusted on site. (Previously referred to as non-traded carbon.)

Indirect carbon means carbon emissions from power generated off site by another organisation. For the vast majority of public sector organisations this will primarily be carbon emissions arising from grid electricity use. (Previously referred to as traded carbon.)

Measure Definitions	
Low carbon heating measures that save direct carbon	Low carbon heating systems that include the following measures: air source heat pumps, water source heat pumps, ground source heat pumps, electric heating and hot water, solar thermal and connecting to district heating networks.
Other measures that save direct carbon	Measures that directly contribute to saving direct carbon for example building fabric upgrades, piping insulation and mechanical ventilation heat recovery.
Measures that save indirect carbon	Measures that only save indirect carbon (typically electricity savings) such as Solar PV, LED lighting and energy efficient ventilation.
Enabling measures	Measures that do not save carbon but enable the installation of measures that do. This can include measures such as electrical infrastructure upgrades, metering, energy storage, etc.

Appendix 2 – Examples of eligible technologies

The following list includes examples of eligible technologies, this list will be also found on the Salix compliance tool. If you plan to include technologies that do not appear on this list in your application, please discuss with Salix prior to submission.

Project Type	Work Type	Saves direct carbon	Saves indirect carbon	Lifetime
Low carbon heating	Air source heat pump (air to water)	X		20.00
	Air source heat pump (air to air)	X		20.00
	Water source heat pump	X		25.00
	Ground source heat pump	X		25.00
	Connect to existing district heating	X		30.00
	Heating - electric heating	X		10.00
	Hot water - electric point of use heaters	X		12.00
	Solar thermal	X		25.00

Project Type	Work Type	Saves direct carbon	Saves indirect carbon	Persistence Factor
	Biomass	X		20.00
Building energy management systems	BEMS - not remotely managed	X	X	6.84
	BEMS - remotely managed	X	X	8.42
Cooling	Cooling - control system		X	6.84
	Cooling - plant replacement/upgrade		X	8.21
	Energy efficient chillers		X	14.44
	Free cooling		X	13.68
	Replacement of air conditioning with evaporative cooling		X	13.68
Energy from waste	Anaerobic digestion	X	X	15.20
	Incineration	X	X	15.20
Heating	Heat recovery	X		10.83
	Heating - discrete controls	X		6.84
	Heating - distribution pipework improvements	X		15.20
	Heating - zone control valves	X		11.88
	Plate heat exchanger	X		28.50
	Steam trap replacements	X		15.20
	Thermal stores	X		18.00
Hot water	Flow restrictors	X		14.00
	Hot Water - distribution improvements	X		18.00
	Hot Water - efficient taps	X		11.00
Insulation - building fabric	Cavity wall insulation	X		30.00
	Double glazing - metal/plastic frames	X		28.00
	Dry wall lining	X		30.00
	Floor insulation - suspended timber floor	X		27.00
	Floor insulation - solid floor/other type	X		30.00
	Loft insulation	X		27.00
	Roof insulation	X		30.00
	Secondary glazing	X		7.92

Project Type	Work Type	Saves direct carbon	Saves indirect carbon	Persistence Factor
Insulation - draught proofing	Insulation - draught proofing	X		29.25
Insulation - other	Automatic speed doors	X		8.45
	Automatic/revolving doors	X		8.45
	Draught lobby (external)	X		29.25
	Draught lobby (internal)	X		29.25
	Radiator reflective foil (external walls)	X		8.00
Insulation - pipework	Heating pipework insulation (external)	X		9.00
	Heating pipework insulation (internal)	X		22.50
LED lighting	LED - new fitting		X	25.00
	LED - same fitting		X	13.00
Lighting controls	Lighting - discrete controls		X	8.89
	Lighting control system centralised		X	10.26
Motor controls	Fixed speed motor controls	X	X	11.40
	Motors - flat belt drives	X	X	11.40
	Variable speed drives	X	X	10.26

Motor replacement	Motors - high efficiency		X	15.00
Renewable energy	Small hydropower		X	22.80
	Solar PV		X	22.50
	Wind turbine		X	17.60
Time switches	Time switches	X	X	6.84
Transform-ers	Low loss		X	30.00
	Transformer tapping change		X	30.00
Ventilation	Fans - air handling unit		X	23.75
	Fans - high efficiency		X	14.25
	Phase change material		X	23.75
	Ultrasonic humidifiers		X	7.22
	Ventilation - distribution		X	30.00
	Ventilation - presence controls		X	6.84

Technologies that do not reduce carbon emissions but enable future heat decarbonisation projects to take place – these technologies are exempt from the requirement to meet the £500/tCO₂ lifetime criteria. Additional Criteria must be met.

Project Type	Work Type
Battery Storage	Battery in combination with renewable
	Standalone Batteries
	Upgrade uninterruptible power supply
Electrical Infrastructure	Capacity Improvements
	Electrical Distribution
	Incoming Electricity Provision
Metering	Flow Meters
	Heat Meters
	Metering Other
	Metering Software

Appendix 3 – Three year plan guidance

This set out guidance for completing a three-year plan from identifying projects through to delivery.

Buildings

Think about your estate and potential for projects in these building.

- Do you hold a building inventory? This can be just for buildings that are owned or occupied under long term leases by the Public Sector Body.
- Building characteristics
- What age are the buildings?
- Where are they located (urban, rural) in groups/clusters or close to each other?
- What is located in the surrounding area?
- What is their use in terms of activity and occupants and hours of use?
- What is the condition of the building fabric such as roofs, windows and walls?
- What is the estimated heat loss of the building, and could this be a barrier to low carbon heating?
- Are there any proposed disposals, changes in use, major refurbishments or new builds planned?

Energy consumption and carbon emissions

- Do you have energy billing information?
- Is existing metering/submetering installed in the buildings and are they monitored?
- Who pays the energy bills for these buildings?
- Do you have a breakdown of the current heat demand performance of these buildings (kWh/m²), including floor area of the buildings?
- Are there plans to implement additional meters?
- Do you have historical energy consumption which will provide you with a baseline?
- Do you have a monitoring and verification plan in place for any proposed measures?
- Do you know what your carbon emissions are against energy sources?
- Have you calculated them in the past so you can start to see a pattern?
- Do you know what the future emissions for the site will look like to 2050?

Heating systems

- What are the current heating technologies for the buildings? Or is it connected to a heat network?
- What fuel is being used by the heating system?
- If it is a heat network what is the source of the heat?
- Is it a wet system? If so:
 - What heat emitters are used in the building(s)? (e.g. radiators/under floor heating)
 - How is heat transferred throughout the building? (e.g. Low, Medium, High Temperature Hot Water/Steam)
 - What is the condition of the heating system?
- If heat is provided through or combined with an air conditioning system:
 - What is the heat distribution to the air conditioning?
 - What type of air conditioning is it?
 - What is the cooling system? How is that fuelled?
- How is hot water provided e.g. heating system, separate gas fired water heaters, use electric heaters? What is it used for e.g. showers, washing hands, catering.
- What does the ongoing maintenance programme look like?
- Are there sites where heating equipment is at the end of its life and due for replacement?

Determining the whole solution

With the knowledge of the site and existing conditions (as well as understanding your heating systems) and the knowledge gained from exploring the following, you should be able to explain in your plan what your solution will be:

- Previous energy efficiency projects and existing low carbon heating technology
- Heating networks and opportunities on site
- Electricity loading capacity to support a switch to electric heating solutions
- Plans for the sites

Dependent upon the stage you are at, your plan may be more or less mature. If you are at an initial stage, you should record your conceptual ideas. You may have more than one idea and should capture them all, but with them note how easy and effective they may be to implement, and if they will achieve your goals. This will help to evaluate a shorter list of possible solutions. Questions to consider are:

- Is the solution going to work for this site?
- Will it be easy to install?
- How will it fit with other technologies on the site (will it complement them or overlap or be difficult to work together)?
- Are there other elements of a system that ought to be installed in advance or in parallel to get it to work better (i.e. building fabric improvements, controls upgrades, or ventilation)
- What energy reduction will it offer, will it move away from fossil fuels in part or fully? What will the replacement fuel supply is that readily available (i.e. biomass or electricity?)
- Are there permissions and other agreements one would need to seek before being able to go ahead (planning permission, access to land etc,)
- Who will install the technology?
- How easy will it be to operate? Who will operate it?
- Will there be a back up in case of emergencies?

Estimating cost

As a check you should ask yourself these questions:

- Have you captured costs from all the different parts of the process?
- Within the installation are there other things that will need to be considered such as asbestos removal, temporary heat generation, preliminaries, ancillaries and making good.

You should provide an indication of what the solution would be how you would install it and if you have any other steps to complete to get to that point (i.e. involving an M&E engineer for design, tendering or gaining quotes). The next section on delivery covers this in more detail.

Delivery

You will need to think about how you are going to deliver the work the plan will recommend. You might wish to consider how you are going to get the plan through internal sign off and deliver it with consultants or contracts.

- How are the solutions going to be assessed?
- What metrics will you need to generate to gain internal sign off?
- Who is going to do that?
- How much is it going to cost? (see estimating cost)
- How are you going to commission the work/what procurement route?
- How long will it take?
- How are you going to manage the contract and oversee the outputs (linked to the section on below on Resource)
- What you think the overall longer-term delivery might look like (it is expected that this will be very approximate but show a rough plan for the overall delivery)

If this has already been established, then the plan should show what the overall implementation plan is detailing how it will be taken forward including:

- What the overall budget costs and benefits are expected to be?
- What the timeline for delivery will be?
- What the delivery model is likely to look like?
- How it is going to be managed (linked to resource)

Resources

Things you would need to know in advance of considering resource are:

- How many projects you plan to undertake across the portfolio?
- What the delivery route would be (who would undertake what roles and what would you outsource and what would remain within the organisation)
- What is the governance for the investment and delivery?

With those in mind then you are able to consider:

- How would this programme be driven within the organisation?
- Who would be responsible for coordinating it?
- Who is going to be senior sponsor and report on progress?

- Who is responsible for managing and monitoring the ongoing energy consumption across the estate and who will be overseeing the delivery of the plan? Would they be the same person? Would they have time to do everything?
- Are the individuals overseeing any project appropriately trained, or will additional training be required to deliver the heat decarbonisation plan?
- What is the existing resource for the identification, development, and delivery of the heat decarbonisation plan? Is it sufficient to deliver the scale that you need to?
- What are the anticipated resource requirements for the delivery of heat decarbonisation plan?
- Will this require additional human resource?
- Will it require additional financial resources?
- What is the resource plan which would support delivery?

Previous energy efficiency projects and existing low carbon heating technology

- Have any energy efficiency works been completed in the buildings previously? If so, what are they and did they deliver?
- Are there more projects that are planned?
- What type of project are they? Have you got a list of the projects knowing which are heat (direct/nontraded/scope 1 related) and other (primarily scope 2)?

Within the pipeline are there plans to improve the thermal efficiency and airtightness of the buildings? (Note that these might come from routine end of life replacement of windows, doors, roofing materials etc.). This stresses the importance of making the link between estate management and energy management in ensuring these aspects are captured.

If applicable, has the proposed reduction in energy demand resulting from these energy efficiency measures been incorporated into the sizing of the low carbon heating system?

Heating networks and opportunities on site

Large public sector buildings or campuses with a high heat demand can provide a baseload for a district heating network which will have benefits for the wider community.

- Are there any existing or planned heat network developments located close to the sites that your buildings could connect to?
- Is there scope for the organisation to provide a potential baseload for a future heat network to benefit the wider community?
- Are there any other sources of secondary heat in proximity to the site(s) or on site?
- These may include:
 - Heat Sources such as: water, air, ground
 - Heat recovery opportunities
 - Sewer, industrial sites or anywhere where there is waste heat such as data centres or battery storage sites
 - Energy from waste e.g. Potential for anaerobic digestion
 - Significant cooling plant

Electricity loading capacity to support a switch to electric heating solutions

By adding additional electrical loading through the switching of your heat source, there is a chance that there won't be enough electrical capacity coming into your building(s) or in the wider area.

The cost of increasing the electrical supply to a site can vary substantially (and can be high). Therefore, it should be investigated before any projects are commissioned.

- Do you know what the increased demand of a heat pump or other electrified heat load, plus any electric vehicle (EV) charging would be for your building (s)?
- Do you know what the current capacity of the building(s) are?
- Do the sites have their own medium voltage network?
- Can you give some details on the rating and the loading capacity of the network?
- Is there sufficient capacity for the additional electrification of your estate (refer to the contract agreement with your Distribution Network Operator (DNO))?
- Have any energy efficiency or renewable generation measures been implemented previously to reduce electricity consumption of the buildings?
- Are there any further significant measures that can be considered to reduce electricity demand of the buildings (e.g. light emitting diode (LED) lighting and controls)?
- Are there plans to increase capacity?

- Have you contacted the DNO about increasing electrical loading?
- Is there potential on site to install/increase renewable generation to support the increase in electrical demand from low carbon heating solutions?
- Does the site have any existing EV charging stations and future plans (note that this will also affect the overall site capacity)?

Plans for the sites

This section could consider:

- Any planning restrictions or planning guidance in your area (including listed status of buildings)?
- Plans for demolition and rebuilding, major refurbishment or change of use, occupancy, or operational hours?
- Are there plans that are in the public domain for expansion or rationalisation of sites or change of usage?
- Plans for new builds and the planning standards for new builds in your area?
- Planning guidance for heating systems and energy efficiency in new builds in your area/buildings?
- Building standards and building regulations?

Key challenges

This section aims to explain the main challenges that the organisation faces in decarbonising heat and the support that the organisation needs to meet your decarbonisation targets. The challenges (i.e. barriers or key risks) can be summarised and are likely to include:

- What is the internal governance?
- Who would need to sign off on this work?
- Does the current business case process allow for carbon emissions?
- What are the challenges in decarbonising heat in your buildings?
- Are any of your buildings listed buildings?
- What options are available?
- What is the cost?
- What resources are required?
- Are partnership arrangements in place for different organisations to work together?
- Are procurement frameworks in place to enable timely delivery? Are they able to cover the technology and the scale?
- What commercial agreements for funding and finance are available beyond Salix?
- Are there public consultation exercises that are required to take place and has this been factored into the plan?
- Are there border issues that must be considered?
- Are there other environmental issues that impact on the plan?
- Are there any challenges within the supply chain for the recommended technologies?
- Installation/onsite risks?