



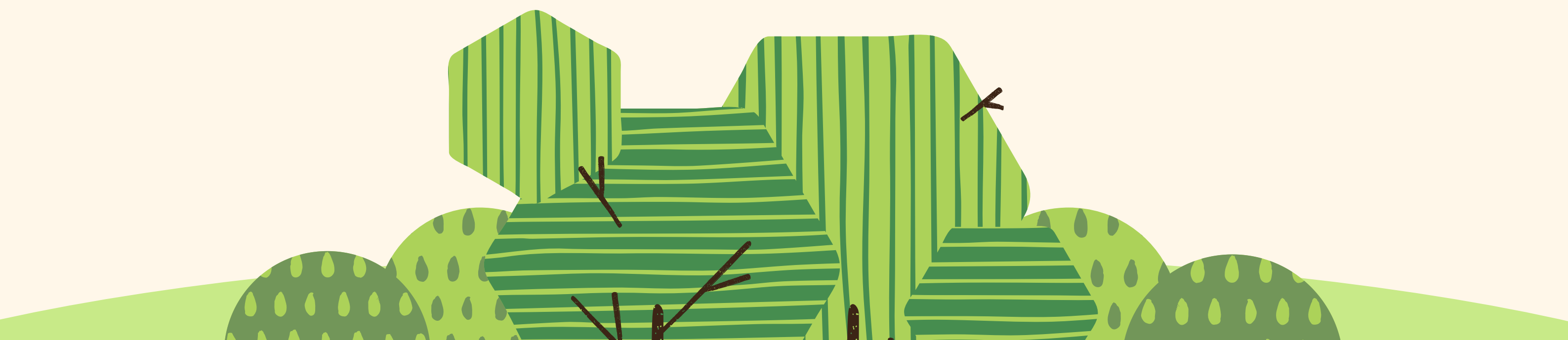
THE CHURCH  
OF ENGLAND

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Diocese of Leeds

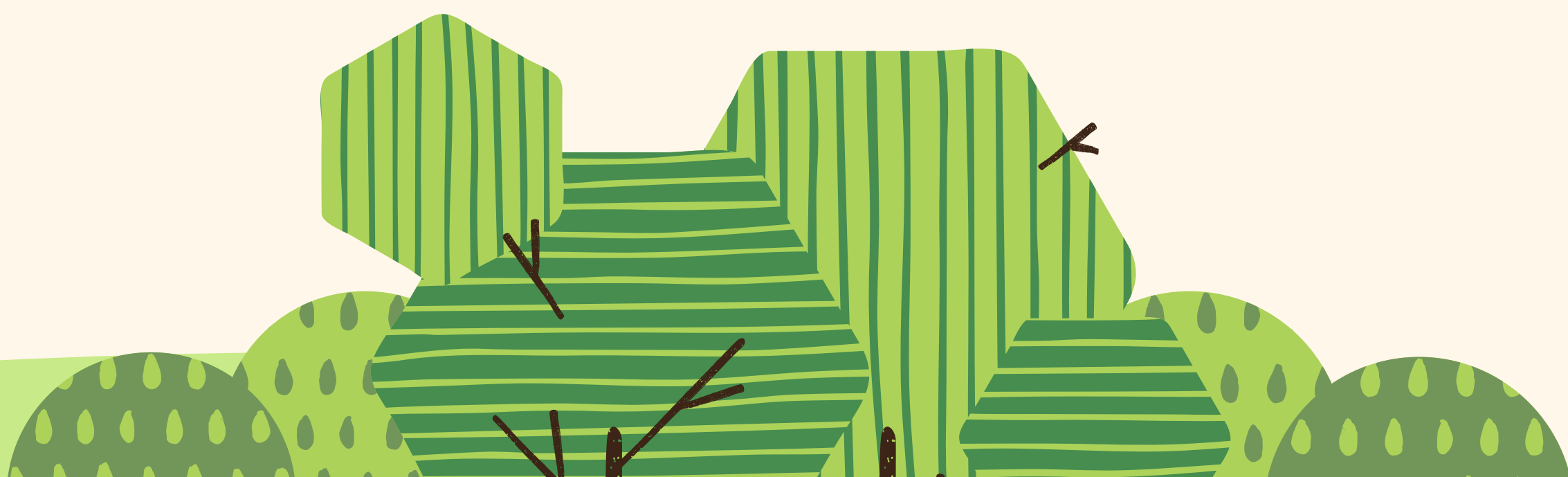
# Sustainable Buildings

A guide to navigating decarbonisation in schools.



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# Introduction

## **Why should Christians care for creation?**

Responding to the climate crisis is a vital part of our duty to protect God's creation and strive for a fairer world. Climate change disproportionately affects the world's poorest communities, and the widespread destruction of the natural world is a threat to creation itself. By taking actions to reduce your carbon footprint, you are helping to conserve and renew the world, helping to create a better future for the next generations.

## **Why is making our buildings sustainable important?**

School energy consumption makes up 60% of the overall carbon footprint of the Church of England. This means that the scope for improvement is huge.

Becoming environmentally aware is much more than just looking after your building in an efficient way. The journey affects yourselves, your staff and your students. It is a holistic mission.

## **Almost every action that you take will have a positive impact**

- Cutting down air pollution improves health
- Saving energy saves you money
- Eating less meat and more vegetables improves well-being whilst mitigating carbon emissions
- Buying Fairtrade means a better deal for farmers
- Buying local bolsters the local economy





## HOW WE CAN WORK TOGETHER

Here at the Diocese of Leeds, we are here to support you. Your sustainability journey may seem overwhelming. Our job is to help make the process manageable and achievable, providing help wherever we can so that we can create a better learning environment and world for our communities.

### What do we offer?

**Dedicated sustainability officer**

**Help with completing energy audits**

**Help with finding funding opportunities for your projects**

**Advice on implementing changes**

**Help creating Climate Action Plans**

**Workshops**

**Training**

For help and advice contact  
**[beth.maclean@leeds.anglican.org](mailto:beth.maclean@leeds.anglican.org)**

# Where to start

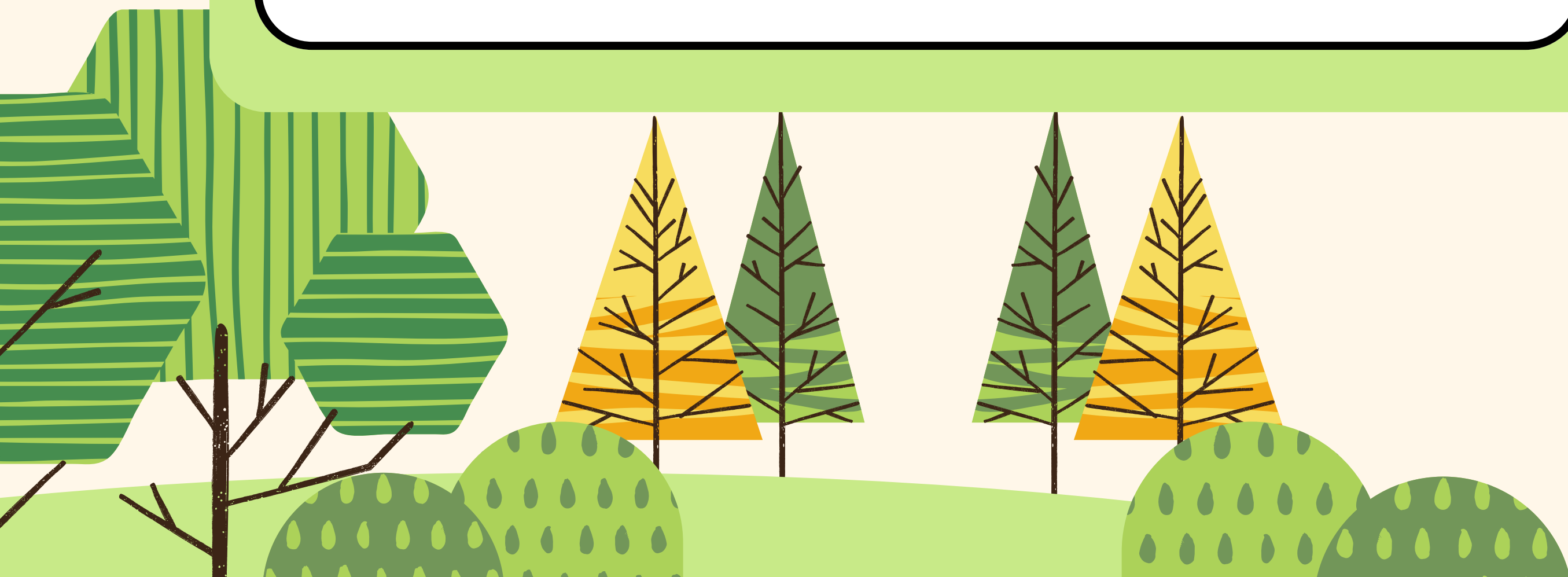
## EVALUATING YOUR BUILDING

By understanding your building you are able to more accurately plan what actions could be taken to make improvements.

Click on any of the resources below to get started.

Complete the [Energy & Buildings Self Audit](#) for your building. This tool aims to help you to understand the energy efficiency of your school buildings. It helps to identify actions aimed at reducing carbon emissions. It provides next steps for retrofitting your buildings and can be used to help prepare for funding and project planning.

[The Heating Resilience Plan](#) provides an easy access contact sheet and source of key information should your school heating fail. It's a great resource to have completed, to ease stress in a time of need.





# AUDIT YOUR ENERGY USE

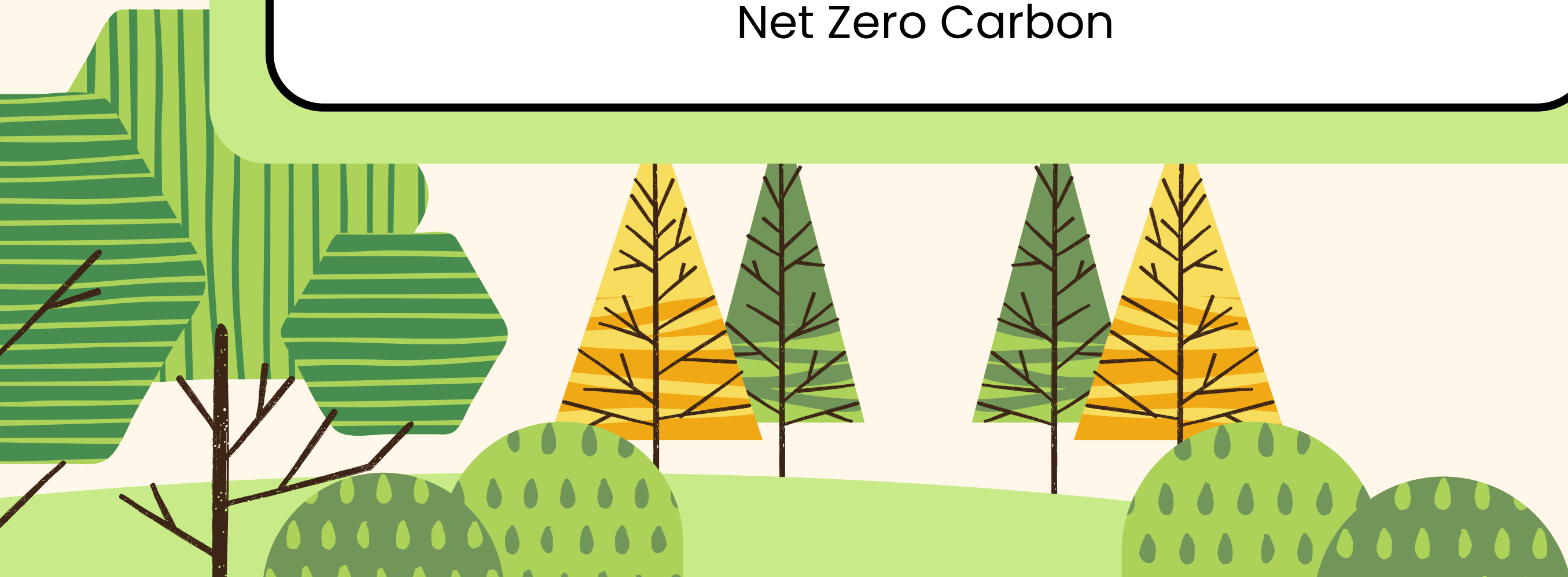
**Information is power.** Knowing your starting points enables you to target your actions and know when you are making a difference. Motivating everyone to drive further change.

Use our [Saving Creation Toolkit](#) to help identify actions that can be taken to reduce your carbon footprint. The Action Sheets are full of practical ideas and collective worship materials to help schools communicate why Christians should care about caring for the planet.

Complete a detailed assessment of your school's current energy use and building fabric to identify areas for improvement. [Count Your Carbon](#) is a free tool that can help you to achieve this.

Download and complete the document:  
[Practical Path towards Net Zero](#)

This document highlights possible quick wins along with short-medium term actions that schools can take to help the school buildings progress towards Net Zero Carbon



# SUSTAINABILITY LEADERSHIP AND CLIMATE ACTION PLANS

Following your energy audit and completing the Practical Path towards Net Zero, you can create a Climate Action Plan which will help you to outline the steps and timeline for implementing changes.

For advice on where to start click the [HERE](#)

## SUSTAINABILITY LEADERSHIP AND CLIMATE ACTION PLANS

By 2025, all education settings will have a nominated sustainability lead and put in place a climate action plan.

[Sustainability leadership and climate action plans in education \(GOV.UK\)](#)



# A CULTURE OF SUSTAINABILITY

We are mindful that not all schools are able to make large decarbonisation projects at this moment in time due to tight budgets, space limitations and other restrictions. However, something that all schools can do is create a culture that encourages students to make changes and creates a better environment for now and for future generations to enjoy.

## **Raise awareness**

Help students to understand environmental issues and how they affect the planet

## **Encourage sustainable practices**

Encourage students to make decisions that help reduce the schools' environmental impact for example:

- Encourage students to take part in energy audits, identifying areas for improvement (i.e. switching off lights)
- Recycling and repurposing
- Secondhand uniforms
- Walking to school where possible
- Improve biodiversity

## **Green careers**

Help students to understand the wide variety of opportunities that are available that contribute to preserving and/or restoring the environment.

Encourage students to pioneer their own climate change initiatives and gain **certificates and awards for taking action**





# PRIORITISING WORKS

Here we explore some possible free/low cost, medium cost and high cost options. There are more solutions out there, but here are some to consider.



## FREE / LOW INVESTMENT

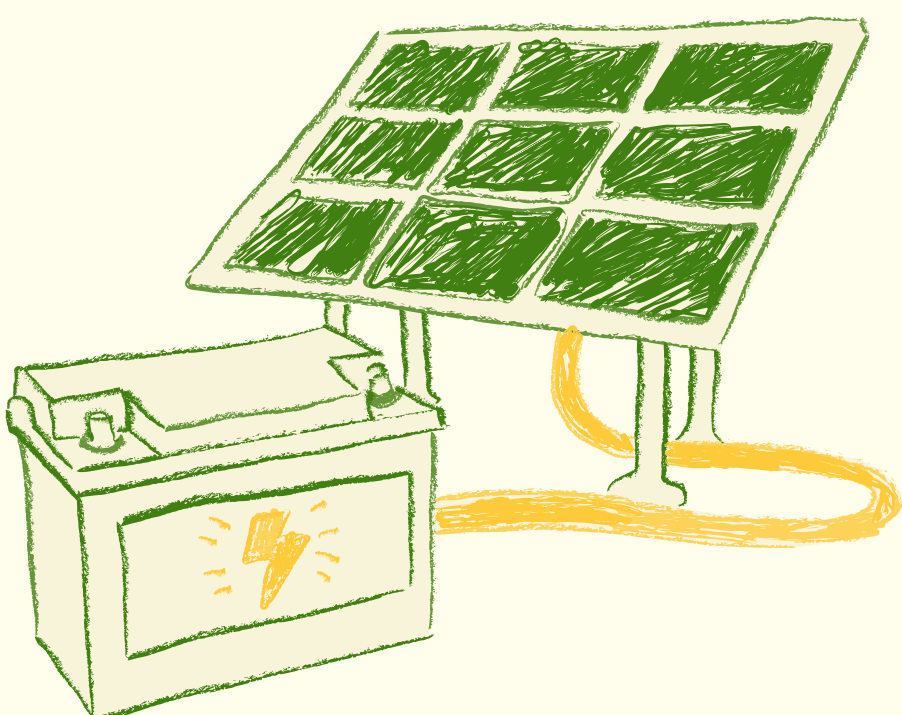
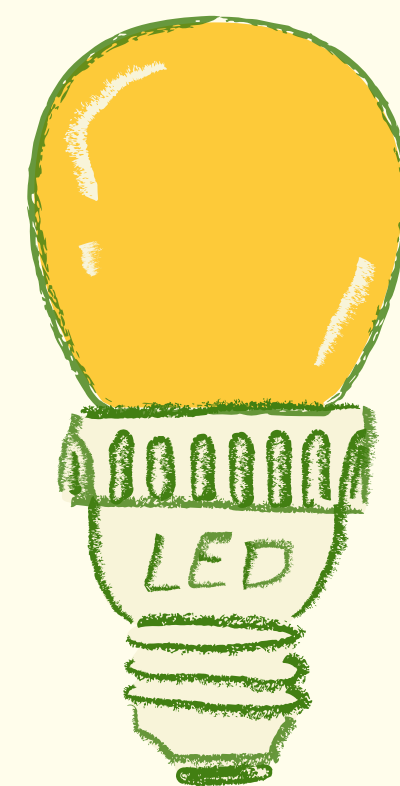
**Typically involves a culture change:**

- Reduce energy consumption
- Work with eco-friendly suppliers
- Undertake regular maintenance
- Install smart meters
- Switch off lights when not in use

## MEDIUM INVESTMENT

**Typically involves building envelope:**

- Insulation
- Installation of LED lighting
- Double glazing
- Installation of point-of-use hot water



## HIGH INVESTMENT

**Typically involves building works:**

- Installation of solar panels
- Installation of heat pumps
- Installation of wind turbines



# MAKING CHANGES: ENERGY USE CONSUMPTION

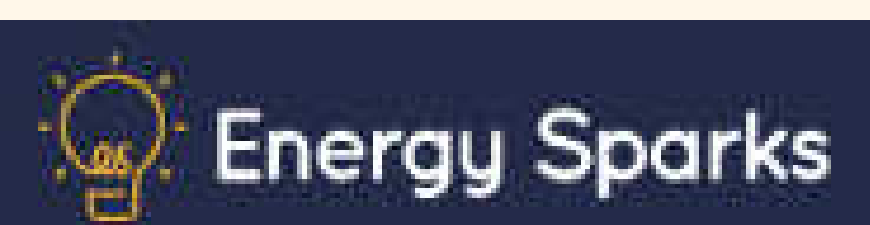
When we know what, when, why and how we are using energy, we can make informed decisions to reduce the amount of energy we use. Making changes based on this data not only reduces the school's carbon emissions, but also has an added benefit to schools:

## **Using less energy saves you money.**

- Can you switch to a renewable energy tariff?
- Can you use natural lighting more?
- Can you turn off lights and equipment when not in use?
- Could you install sensors to automatically turn off lights?
- Can you set up heating schedules so heating is only used when needed?
- Can you switch to LED lightbulbs?
- Can you install a smart meter?

**Ask your energy supplier to install a smart meter.**

**Installing a smart meter allows schools to monitor and manage their energy usage in real-time, leading to greater efficiency, cost savings, environmental benefits and a teaching tool.**



**Energy Sparks**  
Is a free online energy analysis tool specifically designed to help schools to reduce their energy usage using the data from smart meters. Sign up to receive online training, energy audits and education workshops



# **MAKING CHANGES: ENERGY USE**

## **ENERGY SUPPLY**

By embracing renewable energy, schools not only contribute to a sustainable future, but can also inspire students and the wider community to adopt environmentally friendly practices. This is a relatively simple step and one that can have a huge impact on your school's carbon footprint.

**Install renewable energy sources where possible (Solar panels, wind turbines, heat pumps)**

**For schools who traditionally purchase energy through the Local Authority and want to keep doing so, apply pressure to your Local Authority to move to a green tariff provider**

**For schools that have energy contracts directly with providers, it is relatively easy to switch to a renewable tariff, and tariffs are becoming cheaper**

**Free and impartial advice is available directly by the DfE. Access this service here:**

**[Get free help from procurement specialists](#)**

The installation of renewable energy sources isn't possible for every school due to tight budgets, limited space and other restrictions. But there are still lots of other actions schools can take to **combat climate change!**

# MAKING CHANGES: BIODIVERSITY

Climate change is harming our world's rich variety of life – it's 'biodiversity'. By creating spaces for nature in our school grounds we can provide both a place for local nature to thrive, and a place for staff and pupils to enjoy.

**Plant  
wildflowers,  
trees and  
plants**

**Create a kitchen  
garden that  
pupils can get  
involved with  
building and  
maintaining**

**Organise  
litter-picking**

**Install bird  
boxes & feeders**

**Use a water butt  
to collect  
rainwater to  
water plants**

**Create a bug hotel**

## **The Wildlife Trust states that**

“those that have the least access to nature also have the worst levels of physical and mental wellbeing. Seeing birds near our homes, walking through green spaces filled with wildflowers, and along rivers that are clean and clear, reduces stress, fatigue, anxiety and depression.”

If you have space, the [Woodland Trust](#) and the [Tree Council](#) give away free trees for schools and communities to plant.



# Thinking about making changes to your building fabric?

## Speak to your school buildings consultant

For large and complex projects we would strongly recommend the use of a consultant. Your consultant will be able to discuss the options with you and help you to decide what the best solution for your schools would be.

## Obtain quotes

You can either source a minimum of three quotes yourself, or for larger projects your consultant will be able to obtain quotes on your behalf.

## Secure funding

Decide whether the project will be funded directly by the school or through a bid application process

## Speak to The School Buildings Team

If you are going to be funding the project yourselves, please complete the project approval form to let us know about your project. Expect a project approval letter within 7 working days

## Install

When all approvals have been received and funding raised, the installation can go ahead.





MEDIUM  
INVESTMENT



## MAKING CHANGES: FABRIC

Around two-thirds of heat from a typical school building is lost through the building fabric (walls, floors and ceilings), so it makes sense to make improvements in this area. By prioritising the building fabric, we can reduce energy consumption by keeping heat within the building.

**Insulate lofts and walls**

**Install double / triple glazing**

**Use natural ventilation where possible**

**Insulate pipework**

**Undertake regular maintenance**

**Check for signs of damp and condensation**

**Prevent draughts** by having doors and windows properly fitted and sealed. Use draught excluders where needed





**MEDIUM  
INVESTMENT**

## **MAKING CHANGES: FABRIC DRAUGHT PROOFING**

**Draughts happen where there are unwanted gaps in the construction of buildings. Draughts are easy and cheap to fix, it's a matter of blocking any holes which allow warm air out, and hot air in.**

**Take extra care in areas that need good ventilation such as kitchens and bathrooms.**

**Typical buildings lose as much as 30% of heat through draughts, they are easy and cheap to fix so are an obvious place to start when looking to make energy saving changes.**

**Your caretaker can take care of gaps around windows, doors and joints between walls, ceilings and floors. However, for complex projects, seek professional advice.**

**Click [HERE](#) for tips on how to draught-proof your building**



MEDIUM  
INVESTMENT



# MAKING CHANGES: FABRIC INSULATION

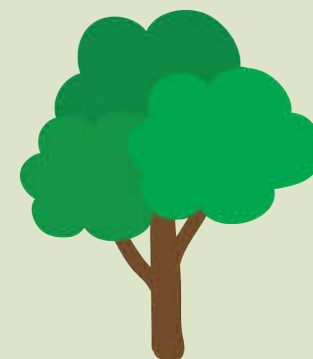
Roof and cavity wall insulation play a vital role in maintaining a comfortable and energy-efficient environment. Insulation acts as a barrier, reducing heat loss in winter, and heat gain during summer.

## WHY should you insulate your building?



### Cost savings

By minimising heat loss and gain, insulation helps reduce energy usage and utility costs



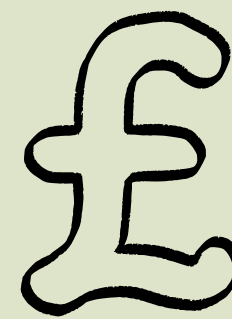
### Environmental Benefit

Reducing the reliance of energy from fossil fuels. lowers carbon emissions and reduces the schools carbon footprint



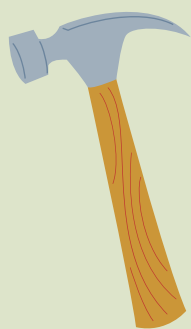
### Sound Insulation

Insulation helps dampen noise, creating a quieter classroom environment



### Increased property value

Well-insulated buildings are more valued higher due to their lower operating costs and improved comfort



### Minimal maintenance

Requires minimal maintenance once in place and typically lasts 20+ years

Some older buildings may have structural limitations or unique features that make insulation installation more challenging. Speak to your consultant or the School Buildings Officer for more information if this applies to you





**MEDIUM  
INVESTMENT**



## **MAKING CHANGES: FABRIC LED LIGHTING**

**LED lights are the most efficient type of lighting. By installing LED lighting, you can cut down on energy bills, shrink your carbon footprint, and enhance the comfort and productivity within classrooms simultaneously.**

**Research indicates that students are prone to better concentration levels when the colour temperature is lower (4000K and 5000k)**



### **How can I tell if a room has LED lighting?**

- Switch the lights on and off, if it is not instantaneous, it is not LED
- Can you safely see behind any lighting cover? You should be able to see the individual diodes of the LED lights
- Is the light flickering? If it is, it is not LED

**Upgrading to LED lighting is a quick and easy way to reduce energy bills by up to 80%**



MEDIUM  
INVESTMENT



## MAKING CHANGES: FABRIC POINT OF USE (POU) HOT WATER



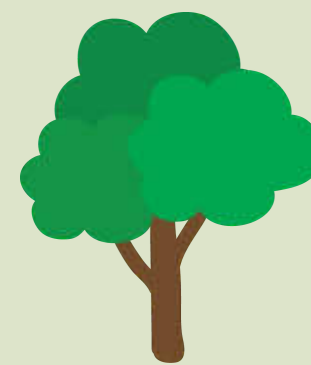
POU water heaters are installed at the point of use, reducing heat loss in storage tanks and pipework. Water is heated within seconds to the desired temperature. Different sized solutions are available for different uses such as bathrooms, kitchens and cleaning.

### WHY should you install POU hot water?



#### Cost savings

Save money by only heating water when it's needed and at the desired temperature to prevent wastage



#### Environmental benefit

Only heating water when needed, and water being instantly supplied at the desired temperature means less energy and water is wasted



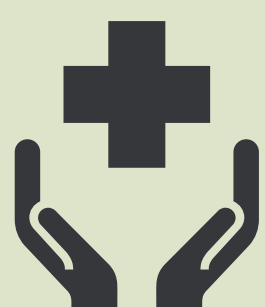
#### Suitability

This solution is suitable in most school buildings



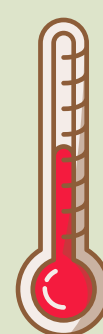
#### Improved technology

This technology is continuously improving and the prices are decreasing



#### Health Benefits

Reduces legionella risk as there is no water stored between 20-40 degrees Celcius



#### Safety

Reduce burn risks by setting temperature controls



MEDIUM  
INVESTMENT



## MAKING CHANGES: FABRIC DOUBLE GLAZING



Double glazing consists of two glass window panes that are separated by a layer of insulating gas. The layer of gas slows down the transfer of hot or cold temperatures from one side to another as there is no air circulation. This reduction in speed of heat transfer helps to reduce heat loss.

Installing double glazed windows is an extremely cost-effective, long term solution to schools looking to reduce their carbon footprints

Double glazed windows should have a lifespan of 20+ years if regularly maintained, and if they haven't been exposed to harsh weather conditions



# FAQS



## 1 Do I need planning permission?

In most cases making changes to a building fabric does not require planning permission unless your building is listed. If you have any doubt please speak with the School Buildings Officer.

## 2 How much will I save?

This depends on what the project you are undertaking is and the scale of the project.

## 3 How can I fund the works?

Schools can either pay for the works themselves, or apply for charity or government schemes. See our funding page for more information.

## 4 Will the works cause disruption?

There is likely to be a fair amount of disruption. Speak with your consultant / contractor to complete the works at a time most suitable for you (i.e during the summer holidays)

## 5 Do I have to use a consultant?

We would strongly recommend the use of a buildings consultant for major projects as they are aware of the intricacies surrounding site and the project that otherwise may be overlooked.

## 6 How soon will we see results?

You should notice an immediate change in your energy bills due to the improved efficiency of your building fabric.

# Thinking about generating your own energy?

## Energy Audit

By conducting a comprehensive audit to collect data on your energy use and site, you can make informed decisions regarding what measures are appropriate and would be efficient at your school.

## Speak to The School Buildings Team

They will be able to point you in the right direction of who to contact and offer advice for your individual school.

## Speak to the experts

Installing low-carbon energy sources often requires technical knowledge and expertise. Schools should seek support from consultants and other specialists to design and execute the most effective strategy for your school site.

## Decision

Using information from your energy audit and experts, you can make an informed decision about whether you'd like to go ahead with the works. If you would like to go ahead with installation, you will need to speak with the Governing Body, Local Authority and School Buildings Officer at the Diocese to obtain approvals.

## Install

When all approvals have been received and funding raised, installation can take place and you can start reaping the benefits of having the works carried out.

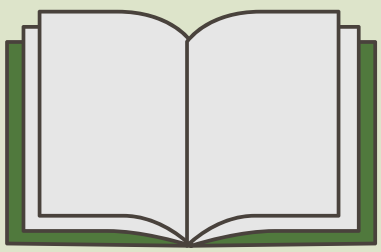


# MAKING CHANGES: GENERATING ENERGY

## SOLAR PANELS

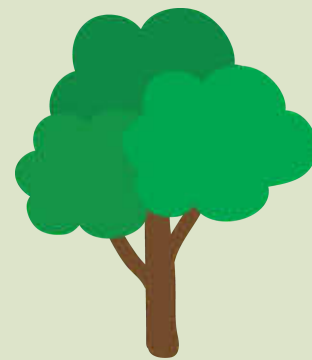
Solar Photovoltaic (PV) cells absorb sunlight and convert the light energy into electricity. This electricity can be used in the school that the solar panels are attached to, or can be sold back to the National Grid.

## WHY are schools going solar?



### Learning opportunity

Provides an educational opportunity for students to explore energy sources and encourage sustainable careers.



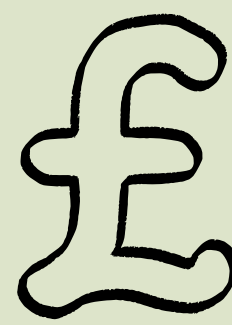
### Environmental benefit

Reducing the reliance of energy used from the grid means a reduced amount of CO2 being released into the atmosphere



### Biodiversity

Increase biodiversity by creating lesser disturbed areas



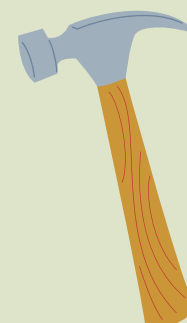
### Improved technology

Solar technology is continuously improving and the prices are decreasing



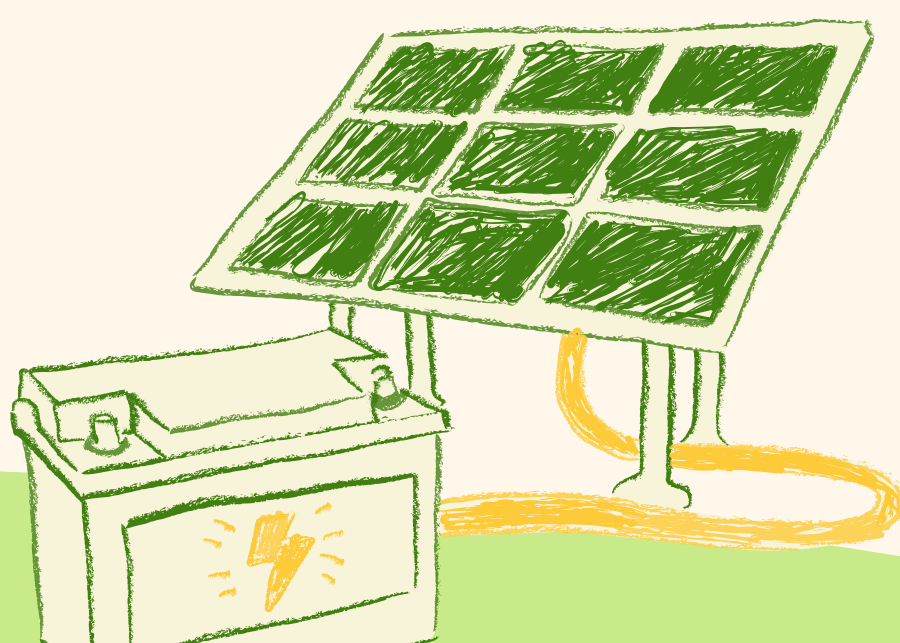
### Cost savings

Though the initial investment can be high, savings in utility bills mean that solar panels pay for themselves over their lifetime

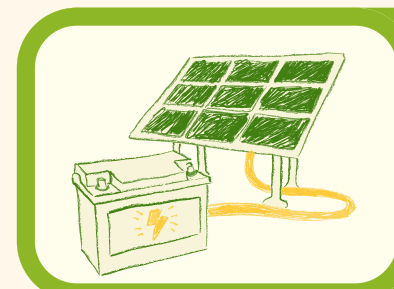


### Minimal maintenance

Requires minimal maintenance in comparison to traditional heating systems







**HIGH  
INVESTMENT**

# MAKING CHANGES: ENERGY SUPPLY

## SOLAR PANELS

Solar panels can be a significant investment that provide a range of benefits. It can reduce electricity bills, reduce carbon emissions, generate additional revenue, and be used as a 'real-life' educational tool. Speak to the School Buildings team at the Diocese of Leeds if you are wanting to consider installing solar panels for your school.

### **Are solar panels worth it?**

Yes, they can reduce carbon emissions, reduce electricity bills, generate additional revenue and be used as a 'real-life' educational tool

### **What is the expected lifespan of a solar panel system?**

High-quality panels can last 25-40 years

### **Do I need permission to install solar panels?**

Yes, you need approval from the Diocese and local authority before works proceed. Please contact the school buildings team at the Diocese for more information

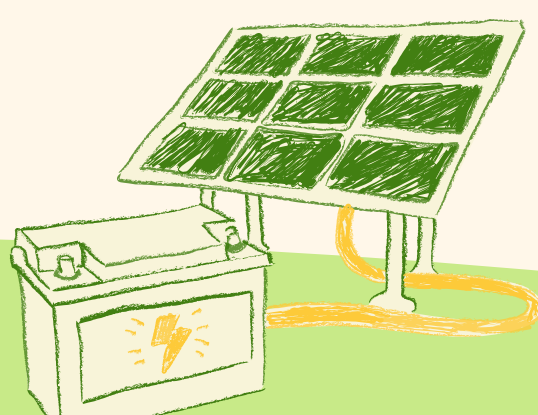
### **How much do solar panels cost?**

This depends on the size of the project and materials use, but usually within the region of £10-50,000

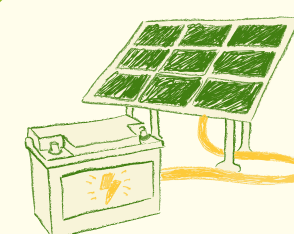
### **What challenges might I face?**

- Solar panels are dependent on sunlight and so won't produce electricity at night and they can be inefficient during storms and gloomy days
- Solar energy storage is expensive, but many providers will allow you to sell your electricity back to the grid where your electricity generation exceeds your usage
- Solar PV isn't suitable for all roof types. Speak to a consultant to see if your roof is suitable

Click [HERE](#) for a step-by-step guide for your school







**HIGH  
INVESTMENT**



# MAKING CHANGES: ENERGY SUPPLY

## HEAT PUMPS

Heat pumps are a highly efficient way to heat and cool buildings. Unlike traditional heating systems, they don't burn fuel to generate heat. Instead, they transfer heat from one place to another. Air-source heat pumps extract heat from the outside air, even in cold weather. Ground-source heat pumps extract heat from the ground which remains at a relatively constant temperature year-round.

## WHY are schools installing heat pumps?



### **Learning opportunity**

Provides an educational opportunity for students to explore energy sources and encourage sustainable careers.



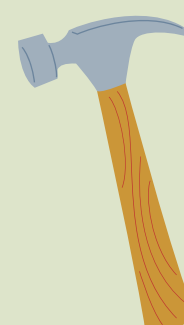
### **Environmental benefit**

Reducing the reliance of energy used from the grid means a reduced amount of CO2 being released into the atmosphere



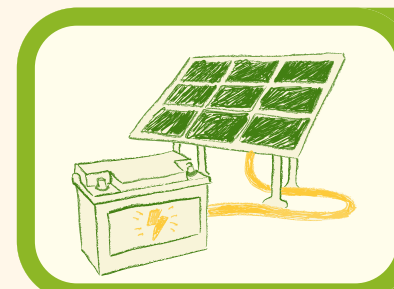
### **Cost savings**

Though the initial investment can be high, savings in utility bills mean that solar panels pay for themselves over their lifetime



### **Lower maintenance costs**

Heat pumps have fewer moving parts than traditional systems, reducing maintenance needs and costs.



**HIGH  
INVESTMENT**

# **MAKING CHANGES: ENERGY SUPPLY**

## **HEAT PUMPS**

Heat pumps can be a significant investment that provides a range of benefits. It can reduce electricity bills, reduce carbon emissions and be used as a 'real-life' educational tool. Speak to the School Buildings team at the Diocese of Leeds if you are considering installing heat pumps at your school.

### **Can heat pumps be used for both heating and cooling?**

Yes, heat pumps can be used for both heating and cooling, providing year-round comfort.

### **What is the expected lifespan of a heat pump system?**

With proper maintenance, heat pumps can have a lifespan of 15-20 years +

### **Do I need permission to install a heat pump?**

Yes, you need approval from the Diocese and local authority before works proceed. Please contact the school buildings team at the Diocese for more information

### **What funding is available?**

The installation of ground-source or air-source heat pumps usually involves an application to the Public Sector Decarbonisation Scheme. Contact the School Buildings Officer for more information.

### **What challenges might I face?**

- The initial cost of installing a heat pump can be significant, however government incentives and long-term energy savings can help offset this initial investment.
- Integrating heat pumps usually requires modifications or replacement of existing pipework, adding complexity to the project and increasing the level of disruption.
- Modern units generate noise levels around 40-60 decibels which is roughly the same as a fridge freezer or gas boiler. Schools should carefully evaluate noise levels during the selection and installation process.

# FUNDING

The greatest barrier we are facing in making changes in schools is limited access to funds. To access a list of potential funding opportunities for your school please visit our [WEBSITE](#)

Please note that these grants are highly competitive, if you would like help with an application please speak to the School Buildings Officer.

01.

## Low Carbon Skills Fund

Provides grants for public sector organisations to access expert advice and skills required to develop a heat decarbonisation plan. Having a robust heat decarbonisation plan will help when applying for capital decarbonisation measures such as the Public Sector Decarbonisation scheme.



02.

## Public Sector Decarbonisation Scheme

Provides grants for public sector bodies to decarbonise their estate.



03.

## School Condition Allocation (SCA)

Funding to maintain and improve the condition of the school buildings and grounds.



Please note that there is guidance for eligibility and what it can be spent on. Speak to the School Buildings Officer for more information.

04.

## Workplace Charging Scheme

Government grant supporting 75% off the cost to buy and install EV charge points up.





# RESOURCES FOR SCHOOLS

Click on any of the icons below to access other available resources to help you on your sustainability journey.



National campaign, offering support to schools working towards net zero.



Our SAVING CREATION toolkit, to help schools take action to reduce their carbon footprint.



DfE support for schools



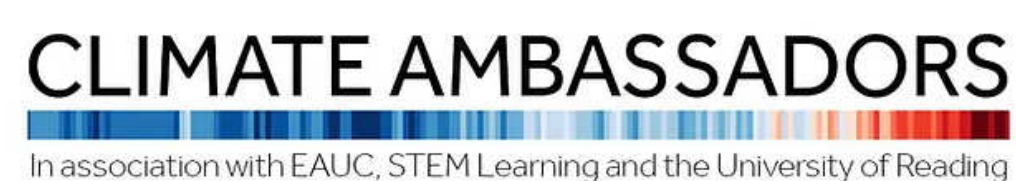
A handy checklist of short, medium and long-term actions schools can take



Free programmes to help schools improve their grounds for both people and nature



7-step programme helping schools to take action on climate change



Access to volunteer climate experts who can help schools to develop climate action plans



Access to curriculum linked resources designed to help pupils explore environmental issues



Charity that offers a school-specific energy management tool and education programme