



# Brighter Futures:

Lighting Up The Path To  
Net Zero For Schools

2024 Report

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# About us.

At eEnergy, we are revolutionising the path to Net Zero by eliminating the barriers to progress.

We are a leading digital energy services provider for businesses and public sector organisations, offering solutions that require zero upfront capital investment for energy efficiency projects.

Our vision is clear: make Net Zero possible and profitable for every organisation. For public sector organisations, where budgets are tight and pressure is rising to reduce emissions, we support with energy reduction opportunities, self-generation and charging solutions, with intelligent digital monitoring services to see exactly where energy is being wasted.

We have worked on 1,033 projects across 840 schools in the UK and Ireland to unlock energy savings and map out the road to Net Zero. Our work has seen us install over 517,000 luminaires and provide our education clients with a potential 10-year net saving of more than £100 million.

## eEnergy school projects to date:

**840**

schools

**443,000**

pupils

**517,000**

LED lights installed

**£102.3 million**

10-year net savings

**12,754 TCO<sub>2</sub>e**

average annual carbon savings



**At eEnergy, our track record in the education sector speaks volumes: we've worked on over 1,000 projects with schools and colleges across the UK and Ireland, helping them slash their energy bills and unleash their net zero ambitions.**

**We understand that schools and colleges have substantial environmental footprints and energy costs represent a significant portion of their operations budgets. They are also crucial spaces to set a positive example for students, staff, and the broader community on climate change.**

**However, 70% of schools are still to make the switch to LED lighting and up to 90% to implement solar panels and EV charging. We have the tools required to monitor and reduce emissions and the funding to make these projects happen without upfront costs. Armed with our knowledge and experience, we are set to engage with many more schools, helping them to realise huge energy efficiencies.**

**Young people will be profoundly affected by the repercussions of climate inaction. Hence, it is imperative that we support schools' efforts to curb energy waste and reduce costs, setting an example for the next generation and laying the groundwork for a greener future.**

**Harvey Sinclair**  
CEO of eEnergy

# Executive Summary.

As a nation, we are facing a convergence of challenges with climate change, a volatile energy market and the ongoing effects of the cost-of-living crisis.

For our public services, this combination is adversely impacting the quality and cost of the services they seek to provide. This report examines the environmental and financial impact of installing LED lighting, solar panels, and other energy efficiency and waste reduction measures, in the UK and Ireland's schools and colleges. It analyses potential reductions in energy bills, as well as the scale of opportunity for carbon emissions reductions within the UK and Ireland's educational institutions. The report supports our ambition to assist the education sector to fulfil the government's 2050 Net Zero ambition.

Our objective is to bring attention to the challenge, and the opportunity, helping to drive accelerated uptake of energy reduction and efficiency measures by leaders where there has been slower progress compared to other sectors.

## Saving schools £2.31 billion in energy costs

The UK government's pledge to achieve Net Zero by 2050 is a required step to safeguard the future of our planet, however adequate support has not been put in place to assist this transition for our educational institutions. The catastrophic combination of increased climate impact caused by our current energy consumption habits, and rising operational costs for schools, has resulted in Net Zero energy infrastructure in schools being pushed down the agenda.

There is a demonstrable lack of funding support and guidance from the government to help schools' adoption of more sustainable practices. Leaders and decision makers at our nation's schools who want to act against rising costs and emissions are therefore looking elsewhere for support.

eEnergy has worked with 840 schools and colleges to date. These projects span three key themes – reduction, generation, and charging – backed up by competitive, compliant financing and digital data solutions to monitor and manage energy consumption. By understanding a school's energy infrastructure, it is possible to identify priority action areas where more efficiencies can be made, such as LED lighting and controls, rooftop solar panels, EV charging points and behaviour change.

This combination of services reduces energy waste as well as minimising reliance on volatile energy prices to slash energy bills and build a foundation for a more sustainable school system. This is crucial when schools waste 30% of their energy when closed over the weekends and holidays.

By eliminating the need for upfront capital, eEnergy addresses the main barrier for schools. By providing the initial funding for Net Zero projects in schools, eEnergy accelerates the transition to Net Zero for educational institutions nationwide.

Considering 70% of schools are yet to complete the switch to LED lighting, the scale of opportunity for emissions reduction and reduced energy bills across the education sector is enormous. If the remaining schools in the UK and Ireland were to undergo lighting projects, the estimated 10-year savings amounts to more than £2.31 billion. This would also see a nationwide reduction in emissions of 287,265 TCO<sub>2</sub>e per year.



# 70%

## of schools are still to switch to LED lighting

If all remaining schools switched to LED lighting, this would save:



# £2.31 billion

in bills over 10 years



# 287,265 TCO<sub>2</sub>e

in annual carbon emissions

Equivalent to



the annual CO<sub>2</sub> emissions of

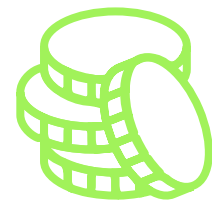
# 20,000 people

Enough to fill The O2 Arena <sup>1</sup>

# Barriers to action.

In many cases, school infrastructure has remained unchanged for decades, with ageing buildings and technology making it difficult to effectively adapt and make efficiencies.

With schools forming the hub of communities across the country, it is crucial that key steps are taken to educate people and inform behavioural change alongside upgrading or replacing existing infrastructure.



## Lack of capital funding

With limited budgets, the initial cost of implementing energy efficient solutions and installing energy efficient equipment can be prohibitive for many schools.



## Lack of transparency in savings available

A lack of understanding in where efficiencies can be made and how energy efficiency projects can reduce bills, as well as carbon footprint.



## Lack of knowhow and resources

Some schools may lack the necessary knowledge and expertise to identify energy-saving opportunities or to understand the potential benefits of energy efficiency measures.



## Other pressing priorities

Lengthy decision-making processes and competing priorities in schools is a major challenge to act on Net Zero ambitions.



## A financial shortfall

Government-led schemes, such as the Public Sector Decarbonisation (PSD) scheme, provides grants for public sector bodies to improve energy efficiency measures. However, demand for funding massively outstrips supply.

Analysis by Schools Week suggests that only 21% of the £1.27 billion handed out over the last two phases of the PSD scheme went to bids featuring schools<sup>2</sup>, a 20% decrease since the first funding wave in 2020. The remaining grants for energy efficiency and decarbonisation projects were split between local councils, NHS Trusts, universities, police, government departments and non-departmental public bodies including libraries and museums.

It is clear there is a huge discrepancy between what the government can offer and what needs to be done.

eEnergy estimates that the government would need to invest at least



# £5.4 billion

to install adequate rooftop solar, LED lighting and EV charging to UK schools.

# 286%

more than the current PSD scheme, which is supposed to cover all public sector organisations, not only schools.

Cuts in school funding seen over the past decade have made funding projects aiding schools' Net Zero transition unrealistic. Following the latest budget announcement, 2024-2025 funding is due to be 3% lower in real terms than it was in 2010<sup>3</sup>. The lack of funding and available capital has been compounded by soaring running costs driven by external shocks to energy markets.

The UK's post-Brexit economic slump along with the Covid-19 pandemic and Russian invasion of Ukraine has increased energy price volatility and further depleted schools' already tight budgets. On top of soaring energy bills, schools have also seen rapidly rising staffing costs. In addition to pay rises in line with increases in the National Living Wage, the past year has seen average teacher pay per head increase by 6%<sup>4</sup>.

## Missing Net Zero milestones

The Department for Education (DfE) has set milestone targets aimed at reducing carbon emissions in schools<sup>5</sup>:

**50%**

reduction by  
the end of 2032

**75%**

reduction by  
the end of 2037

However, the environmental audit committee has warned the DfE that these goals have not seen enough progress to be achievable. The committee claimed that based on current progress, only 20% of the school's estate in England will be Net Zero compliant by 2050<sup>6</sup>. As one of the largest groups of carbon emitters within the public sector, it is imperative that schools are given adequate support to help fulfil the Government's broader climate pledge.

### eEnergy estimates

**70%**

of schools are yet to fully  
switch to LED lighting.

**30%**

of energy is wasted when  
schools are closed.

Therefore, education institutions urgently require alternative means to fund Net Zero Projects, without the expectation of possessing upfront capital.



**By signing up to the Let's Go Zero campaign, school leaders are showing their ambition to be Net Zero. Our network of free Climate Action Advisors across England is helping to give those leaders the confidence and competence to make key decisions that will support their Net Zero journey. Let's Go Zero works with the Department for Education and key sector stakeholders to support all schools to take climate action, including having access to funding that can support retrofits across the whole education estate.**

Alex Green  
Head of Let's Go Zero



## Alternative routes to Net Zero

eEnergy's compliant funding solutions have enabled projects such as those undertaken at Bellevue Place and HEART, unlocking their potential to achieve Net Zero ambitions.

Extra-governmental solutions have also helped to bring schools together to achieve Net Zero ambitions. These include campaigns such as Let's Go Zero, which represents over 104,000 teachers and nearly 620,000 pupils. Let's Go Zero aims to unite and support UK schools working to become zero carbon by 2030 and continues to push for ambitious action to be taken quicker and more funding to be made available for schools.

### Everything FM Public Sector Framework

eEnergy is one of the approved specialist suppliers within the Everything FM Public Sector Framework.

Everything FM connect organisations, including schools, multi-academy trusts, colleges, and universities, with high-quality net zero solutions providers to offer fast, fully compliant, and flexible procurement support. The Everything FM solution enables the public sector to meet their net zero vision objectives efficiently and effectively without lengthy tenders, complex contracting and fixed framework terms.

As an approved supplier, Everything FM work together with eEnergy to help schools achieve Net Zero targets in a swift and seamless manner, with no upfront costs



# Removing the barriers.

## Reduction.



Overcoming the challenges associated with identifying opportunities to reduce energy consumption, as well as the design and installation of LED lighting and controls.

Most of the nation's schools rely on outdated fluorescent lighting, but the switch to LED lighting can result in up to a 30% reduction in energy bills. When coupled with efficient lighting practices such as motion-activated lights and timers, the cost of lighting can be drastically reduced by up to 70%.

## Generation.



Designing and installing onsite solar panels can cut energy costs by up to 20%, while facilitating decreased carbon emissions.

Self-generation of energy enables schools to fix a percentage of the cost of their energy bills over the next ten years. Following this, the cost of energy from solar power is free, aside from minimal maintenance costs

## Charging.



Comprehensive electric vehicle (EV) charging solutions enable organisations to embrace fleet electrification or simply provide EV charging facilities for staff and parents, reducing scope three carbon emissions, and creating an average projected annual revenue stream of over £30k, considering both term and holiday periods of use.<sup>7</sup>

## Monitoring.



Digital management solutions and intelligent metering allow for a better understanding of a school's energy consumption and provide transparency and confidence to school leaders.

This allows decision makers to see where energy is being wasted, as well as informing student and staff behavioural changes to reduce energy consumption.

## Financing.



Competitive, simple, flexible, and compliant funding means schools and colleges can achieve energy savings without financial and logistical barriers.

Public sector approved financing options, including eEnergy and NatWest's £40 million fund, delivers energy efficient projects with no upfront capital required.



## Case study

# Bellevue Place Education Trust.

Bellevue Place (BPET), a multi-academy trust managing nine primary schools in London and Berkshire, partnered with eEnergy in 2021 to reduce carbon footprint and kickstart projects that would help reach Net Zero goals by 2030.

BPET provides education to more than 3,300 students and by signing up to Let's Go Zero's pledge, the trust sought to find immediate and effective ways to reduce carbon footprint.

The first step with BPET was to deliver a better understanding of energy consumption across sites. By installing eEnergy's intelligent metering technology, MY ZeERO, in nine schools eEnergy were able to provide visibility of energy consumption at a circuit level, highlighting issues such as excessive out-of-hours consumption.

On top of beginning a process of behavioural change, which resulted in a direct 10% reduction in energy usage, this insight revealed an opportunity to drastically reduce energy consumption by installing energy-efficient LEDs.

These were used to replace outdated fluorescent lighting infrastructure in five schools and provide an initial 61% reduction in energy consumption from lighting. This resulted in a 30 TCO<sub>2e</sub> reduction in annual carbon emissions and unlocked 10-year net savings in excess of £115,000 on lighting alone.

Volatile energy pricing combined with increased inflation had led to BPET operating costs to soar. Once the lighting installation was complete, the focus then moved to increasing the Trust's energy independence.

On-site generation is most accessible via solar PV systems, utilising dead space such as rooftops that would otherwise go unused. The installation of 212 solar panels across three of BPET's schools has resulted in generating 28% of their total energy consumption, unlocking an estimated £1.4 million net saving over a 25-year period.

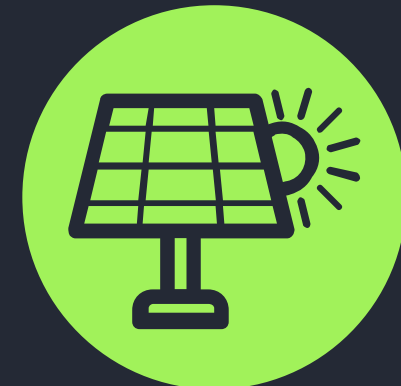


### 61%

reduction of energy consumption

### £115,000

NET savings over 10 years



### 212

solar panels installed

### 28%

energy self sufficiency



Our work with eEnergy has made a huge impact on how we engage with Net Zero, both functionally but also from an educational standpoint. The combination of measurement, lighting and generation services has resulted in a combined 67 tonne annual reduction in our CO<sub>2</sub> emissions, while overall energy consumption has been reduced by up to 37% across all schools.

We realised that three quarters of energy consumed across our schools takes place in daylight hours, which spurred us on to embrace installation of solar panels across nine of our schools. Engagement between our director of operations and eEnergy made the process straightforward and unintrusive.

The capital that has been freed up as a result of the savings has made a huge difference to the children. It has been used to help fund school trips, keep residential running and enable extra-curricular sports to flourish. And going beyond the monetary upside, the students have engaged with the whole process and are taking a real interest in understanding how we use electricity as a school, and what can be done to minimise waste.

Our team of eco-champions have taken a lead in monitoring usage and implementing behavioural change, helping to address the 'climate anxiety' that is common among school children.

**Mark Greatrex**  
CEO of Bellevue  
Education Trust



Case study

# HEART Academies Trust.

Our work with HEART, a Bedford-based non-profit trust, mirrors many of the key challenges and desired outcomes shared by schools across the country.

eEnergy worked with the operational team at the trust to identify and replace 3,186 lighting fixtures with energy-efficient LEDs, giving the four schools a much-needed aesthetic transformation, while slashing energy consumption. HEART's annual lighting costs were reduced by around £65,000, while carbon emissions fell by 102 TCO<sub>2</sub>e per year.

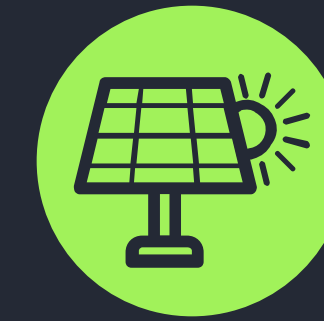
The subsequent installation of a 249kWp roof-mounted solar system across the four sites helped to reduce grid consumption by just shy of 20%. By removing total reliance on uncertain and volatile external energy pricing, HEART was less vulnerable to sudden changes in energy prices.

With increased adoption of electric vehicles by staff and parents alike, eEnergy then worked with the Trust to install 10 electric vehicle chargers. The eCharge system offered a fully customisable solution tailored to meet HEART's EV charging needs and a platform that managed multiple tariffs and provided real-time financial and usage data.

The benefits of solar and EV systems amplified the savings associated with LED lighting and intelligent metering to provide a combined 25-year net saving of over £2.2 million, which translates into an annual carbon saving of 147 TCO<sub>2</sub>e, or the equivalent of planting 6,861 trees.



**£65,000**  
annual savings



**19.6%**  
reduced grid consumption



**10**  
EV chargers installed

**£2.26 million**  
25 year net savings

**147 TCO<sub>2</sub>e**  
saved

Equivalent to



**6,861**  
trees being planted



# A Net Zero solution with no upfront cost.

In early March, eEnergy announced a joint partnership with NatWest to provide £40 million of project funding to finance energy transition projects, exclusively for public sector customers.

The **new NatWest funding package** is specifically designed to meet all current and future accounting practices and compliance for the public sector including schools. This new model breaks down a major barrier for schools and other public sector organisations to act by providing clarity on funding these projects which is separate to government grants.

The ability to borrow at competitive interest rates from one of the UK's most trusted financial institutions will further increase eEnergy's capacity to kickstart Net Zero projects within schools across the country.

As the urgency to address the climate challenge continues to grow, this new funding agreement demonstrates the scale of non-governmental resources available to schools and other public bodies. As budgets are continually pressed, schools require out of the box solutions to reach the education sectors' Net Zero goals.



**We look forward to working with the eEnergy team going forward as they execute their contract pipeline and assist the public sector with deploying energy efficiency and decarbonisation assets.**

**Jacob Lloyd**  
Head of Specialist Asset Finance



# First year impact.

At eEnergy we have seen first-hand how our no-upfront capital model has driven the appetite for implementing Net Zero strategies in schools, making previously unaffordable projects achievable.

eEnergy has helped 840 UK schools to become more energy efficient, installing over 517,000 lower-emissions luminaries. Progress is certainly being made.

The combined year one saving for customers across all eEnergy's schools projects totals £13 million. This figure could fund 5,414,937 free school meals for students across the country. The projected 10-year net saving is over £100 million for these schools. This money now available to reallocated into pupil-focused activities.

In one year alone eEnergy has saved schools:

**£13 million** 

Equivalent to

 **5.4 million**

free school meals<sup>10</sup>

eEnergy has helped schools to reduce their carbon emissions by

**12,754 TCO<sub>2</sub>e**

in total per year.

This is equivalent to



**5,140** cars average annual emissions<sup>8</sup>



**2,487** homes average annual energy use<sup>9</sup>



# A huge opportunity for schools.

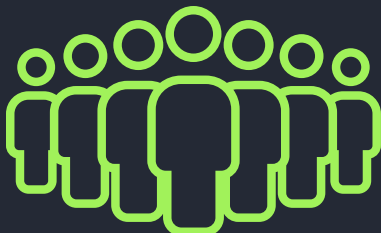
eEnergy estimates that 70% of UK schools are yet to complete the easily implemented process of replacing aging lighting infrastructure with energy-efficient LEDs.

If the remaining 70% of schools switched to LED lighting this would save

**£2.31 billion**

over 10-years

Equivalent to



**77,000**  
new teacher salaries <sup>11</sup>

**287,265 TCO<sub>2</sub>e**

annually

Equivalent to



**23,938**  
return flights from the  
UK to Australia <sup>12</sup>

Without action, the UK's school estate will fall short of achieving Net Zero by 2050 and energy bills will continue to take a significant chunk of school budgets. The scale of the problem is large, but equipped with the right tools and appropriate funding, achieving this goal is both possible and financially imperative. If we as a country are serious about realising Net Zero ambitions, while reinforcing the quality of education and opportunities afforded to our children, the time to act is now.



# Conclusion.

Achieving Net Zero by 2050 is possible, but not without significant and urgent action. There is little-to-no margin for error, and we must act now to have the best chance to realise this ambition.

Of the 32,000+ schools in the UK, 70% of them are yet to fully switch to LED lighting and so many more are yet to deploy key Net Zero projects with an aim to reduce emissions and energy bills. A lack of adequate government support for the education sector is no longer an excuse for inaction when third party options exist to kick start any institution's Net Zero journey.

Through a combination of greater insights into energy consumption through intelligent metering and decreasing day-to-day energy wastage through the installation of LEDs and behavioural change, it is possible to make great progress in a short space of time.

We need to change our relationship with energy consumption. It is an aspect of the school infrastructure that site managers and decision makers have far more control over than they initially anticipate. By using knowledge and granular insights to inform change, the impact on our long-term climate health will be substantial.

The possibilities for energy independence afforded by installing on-site generation technology, such as solar panels can remove our UK schools' reliance on volatile markets, allowing for better allocation of funding and improvements to the quality of our children's education.

Work must start now. By taking the first step, one school at a time, we will make progress and achieve our collective ambition to reach Net Zero by 2050.

# References.

The tables below demonstrate the data collected by eEnergy on the 1,033 LED lighting projects completed to date on schools across the UK and Ireland.

This data has then been used to calculate the projected CO<sub>2</sub> emissions savings and net savings to energy bills for schools who are yet to deploy LED lighting.

	No. of Projects	No. of luminaires installed	Annual CO <sub>2</sub> Saving (TCO <sub>2</sub> e)	10 Year Net Savings	Year 1 Gross Saving	Annual CO <sub>2</sub> Saving per luminaire (TCO <sub>2</sub> e)	10 Year Net Saving per luminaire	Year 1 Gross Saving per luminaire	School capacity (number of pupils)	Annual CO <sub>2</sub> Saving/ pupil (TCO <sub>2</sub> e)	10 Year Net Saving per pupil (capacity)
All eEnergy projects	1,033	517,000	12,754	£102,300,000	£13,040,000	0.02	£197.90	£25.22	443,000	0.03	£231.05

	Size of opportunity (no. of schools in UK)	No. of luminaires to install	Annual CO <sub>2</sub> Saving (TCO <sub>2</sub> e)	10 Year Net Savings	Year 1 Gross Saving
Projections	22,514	11,660,036	287,265	£2,310,000,000	£294,000,000

# References.

<sup>1</sup> 14.1 tonnes CO<sub>2</sub> emissions per person per year (Carbon Independent)

<sup>2</sup> Schools Week, The schools trying to go green, and what's stopping them, 24 October 2023, <https://schoolsweek.co.uk/the-schools-trying-to-go-green-and-whats-stopping-them/>

<sup>3</sup> NAHT - The Schools Leaders' Union,, Majority of schools looking at redundancies due to funding crisis, largest survey of school leaders shows, 7 November 2022  
<https://www.naht.org.uk/News/Latest-comments/Press-room/ArtMID/558/ArticleID/1893/Majority-of-schools-looking-at-redundancies-due-to-funding-crisis-largest-survey-of-school-leaders-shows>

<sup>4</sup> IFS, The latest picture on school funding and costs in England, 1 March 2024  
<https://ifs.org.uk/articles/latest-picture-school-funding-and-costs-england>

<sup>5</sup> Department for Education, Policy paper - Sustainability and climate change: a strategy for the education and children's services systems, 20 December 2023  
<https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy/sustainability-and-climate-change-a-strategy-for-the-education-and-childrens-services-systems>

<sup>6</sup> UK Parliament, Environmental Audit Committee, 23 November 2023  
<https://committees.parliament.uk/committee/62/environmental-audit-committee/news/198615/mps-warn-government-progress-is-lacking-as-only-20-of-the-uks-schools-estate-will-be-net-zero-compliant-by-2050/>

<sup>7</sup> Based on electricity usage charge set at £0.48 per kWh and a cost of £0.25 per kWh for electricity for a bank of 4 22kW EV chargers, assuming an average of three charging sessions per day during regular term time and one charging session per day during holiday periods. This revenue is before the Charge as a Service fix annual costs. The school may feel inclined to offer free charging to students and staff, while charging the public and increase rate to cover the cost. Solar could also be the source of the power reducing the energy cost to circa £0.16p/kWh.

<sup>8</sup> Average car emissions are calculated as 2.48 tonnes CO<sub>2</sub>. This is calculated on the assumption of 52 miles per gallon, based on a city, small, medium, large or estate car and an average 12-month car mileage of 9,000 miles. Emissions are taken to be 14.3 kg CO<sub>2</sub> per gallon. Average values for miles per gallon (mpg) are taken from Which? Car guide 2019/20. Calculations taken from Carbon Independent.

<sup>9</sup> Average electricity and gas emissions per household is calculated at 5.13 tonnes CO<sub>2</sub> annually. This is made up of 1.48 tonnes of CO<sub>2</sub> from electricity consumption and 3.65 tonnes CO<sub>2</sub> from gas consumption. This is based on a medium sized home consuming 4,800 kWh of electricity and 18,000 kWh gas per year. The CO<sub>2</sub> emission factor for electricity is taken to be 0.309 kg / kWh taken from BEIS (2018). The CO<sub>2</sub> generated by burning natural gas is 0.185 kg / kWh, taken from DEFRA (2007). Calculations taken from Carbon Independent.

<sup>10</sup> Funding for free school meals is calculated based on a per-meal rate in England. This is £2.41 for the 2022–23 academic year according to IFS, The policy menu for school lunches: options and trade-offs in expanding free school meals in England, 29 March 2023 <https://ifs.org.uk/publications/policy-menu-school-lunches-options-and-trade-offs-expanding-free-school-meals-england>

<sup>11</sup> Figures from 1 September 2023. Minimum starting salary of £30,000 for a new qualified primary or secondary school teacher in England. <https://getintoteaching.education.gov.uk/is-teaching-right-for-me/teacher-pay-and-benefits>

<sup>12</sup> Average aviation emissions of a return trip from the UK to Australia are calculated at 12 tonnes of CO<sub>2</sub> emissions per person. The calculator assumes emissions of ¼ tonne CO<sub>2</sub> equivalent per hour flying. Calculations taken from Carbon Independent.



# Contact us.

Find out how we can help you eliminate energy waste and transition to Net Zero profitably by visiting the [eEnergy website](#) or calling **020 3813 1550**.

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