

# THE ELMHURST ALMANAC

Looking back, looking forward



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A review of significant development in UK energy efficiency, and the industry's urgent calls for action in 2022.





# Introduction



**Stuart Fairlie**  
Managing Director, Elmhurst Energy



**Six months on from COP 26 and in the face of war in Europe and other forces well beyond our control, we are seeing shockingly high fuel price rises and many big questions being asked about UK and global energy policy. Against this backdrop, it is wise to stop and take stock, looking again at the significance of recent developments in energy efficiency and to look at what will be needed for the future.**

That's why we are publishing Elmhurst's first almanac, designed to help us keep track of significant policy developments from the last 12 months or more, and future ones on the horizon.

As you will see, we have been busier than ever before, and at the forefront of some of the most important decision making that will touch all our lives for years to come.

Not since the 1970s has the UK had so many concerns about the price of energy and security of supply. The issues are also complicated by the urgent need to tackle climate change and achieve Net Zero by 2050 if we are to stand any chance of keeping global warming under control.

Thankfully, unlike the 1970s, we have many of the carbon-reducing, fuel bill busting, energy efficiency solutions at our fingertips, if only we could implement them nationally.

Elmhurst is renewing its call for action on several major fronts, such as the improvement of energy certificates and low carbon retrofit, and these changes feel more urgent than ever before.

We welcome your feedback on this report, the usefulness of the data we provide and our recommendations for future policy. Join in the conversation on social media using the hashtag #ElmhurstAlmanac.

## Key facts and figures

**30%**



Percentage of UK's total greenhouse gas emissions created by UK buildings (domestic and non-domestic). Homes are responsible for 22%.

(Source: EPC Action Plan)

**6 TONNES**



The amount of carbon dioxide produced by the average Scottish household every year.

(Source: Scottish Government)

**17 MILLION +**



Estimated number of UK homes below EPC band C, out of an approximate total of 28 million households.

(Source: England, Scotland, Wales and Northern Ireland housing surveys)

**131,000**



Households in fuel poverty in Northern Ireland in 2018.

(Source: Energy Strategy for Northern Ireland)

**1.2 MILLION +**



EPCs lodged by Elmhurst energy assessors in the UK in 2021.

(Source: Elmhurst Energy)

**3.4 MILLION +**



Approximate number of energy efficiency measures installed in about 2.4 million GB properties through ECO to the end of 2021.

(Source: BEIS)

**£7.5 BILLION**



Estimated annual savings if we upgrade all homes to EPC band C.

(Source: Energy Efficiency Infrastructure Group)

**5%**



Approximate uplift in market value of homes moving from band D to band C, after controlling for other factors such as property size and archetype.

(Source: BEIS)

# £6 BILLION



Gross value added by the transition to low-carbon buildings, supporting 175,000 skilled, green jobs for 2030.

(Source: DHULC Heat & Buildings Strategy)

# 1,740,858



Total number of EPCs (domestic and non-domestic) lodged on the Government's register for England and Wales in 2021.

(Source: DLUHC)

# 162,382



Number of domestic EPCs (not including new build homes) lodged by Elmhurst members in Scotland in 2021.

(Source: Elmhurst Energy)

# 22,500



Estimated number of additional households in Wales likely to experience fuel poverty this year.

(Source: National Energy Action)

# 179 MILLION



Value of first wave of Social Housing Decarbonisation Fund to upgrade 20,000 social homes in England this year.

(Source: BEIS)

# 5,774



Number of new build EPCs lodged by Elmhurst members in Northern Ireland in 2021.

(Source: Elmhurst Energy)

# 45,514



Number of non-domestic EPCs lodged by Elmhurst members in England and Wales in 2021.

(Source: Elmhurst Energy)

# 9,500+



Elmhurst members (registered energy assessors) in 2021.

(Source: Elmhurst Energy)



## Looking back at 2021

Here are just some of the major developments of the last year:

### January



- BEIS **consults on its commitment in England and Wales to upgrade as many private rented sector homes as possible to EPC band C by 2030**, where practical, cost-effective and affordable.
- The Scottish Government confirms that the **Energy Efficiency (Domestic Private Rented Property) Regulations** will be delayed in light of the ongoing situation with Covid-19.
- MHCLG (as was) issues a **consultation on the Future Building Standard** for non-domestic buildings and existing homes in England, and on overheating in new residential buildings.
- MHCLG publishes its long-awaited **response to the 2019 consultation on the Future Homes Standard**, which also applies to England only.

### February



- Scotland goes first with a **consultation on its critical Heat in Buildings Strategy** on achieving Net Zero emissions in Scotland's buildings.
- The Welsh Government concludes its consultation on the **Welsh Building Regulations Part L and F Review - Stage 2A**.
- Elmhurst responds to BEIS on its **consultation on improving home energy performance through lenders**, highlighting that mortgage lenders must play their part in helping the country achieve Net Zero.

## March



- BEIS confirms that **non-domestic rented buildings In England and Wales will need to meet EPC band B by 2030.**
- The House of Commons' Environmental Audit Committee issues its **report into the energy efficiency of existing homes** - to which Elmhurst responds with a call to improve the whole of the EPC framework, from design of the EPC to metrics, occupancy assessments etc.
- The Welsh Government issues its long-awaited **response to the Part L and F review** for new build homes.
- The **Green Homes Grant** voucher scheme in England ends.
- BEIS launches its **consultation on introducing a performance-based policy framework for rating the energy and carbon performance of large commercial and industrial buildings** in England and Wales.
- The Northern Ireland Department for the Economy launched its **consultation on policy options for its new Energy Strategy.**

## April



- UKGBC publishes its **proposals for a Stamp Duty incentive which prioritises tackling climate change.**

## May



- BEIS concludes its **consultation on the closure of the domestic Renewable Heat Incentive scheme to new applicants** and accompanying reforms to future-proof the scheme.
- BEIS concludes its **consultation on SAP 10.2** - proposals to improve the approach to assessing homes connected to heat networks that use recovered heat or Combined Heat and Power.
- Working with the Construction Carbon Footprint Scheme, Elmhurst provides written evidence to the Environmental Audit Committee on **how carbon emissions from the built environment can be controlled and mitigated by a Government-endorsed voluntary certification programme.**



## June



- BEIS concludes its **consultation on the Government's proposed framework to improve implementation and enforcement of the EPC B target by 2030 for privately rented non-domestic buildings** in England and Wales.
- The **Sustainable Warmth Competition** opens to local authorities in England, requiring PAS 2035 to be at the heart of the scheme to fund energy efficiency measures in low income households through to March 2023.
- Elmhurst publishes its information on **why EPCs rarely recommend heat pumps**, and what needs to be done about it.

## July



- After a long transition period, ECO3 adopts PAS 2035 standards and mandatory TrustMark registration for installers.
- BEIS launches its **consultation on proposed changes to improve and strengthen the Energy Savings Opportunity Scheme (ESOS)**.
- BEIS launches its **consultation on proposals to help non-domestic smart meter customers save energy and manage costs through use of the data from their smart meters**.
- BEIS launches its **consultation on proposed changes to the ECO scheme for the next scheme (ECO4)** in England, Scotland and Wales, due to begin in April 2022, including proposals to improve as many fuel poor homes as reasonably practicable to EPC band C by 2030.
- The Scottish Government launches its **consultation on the reform of domestic EPCs**, reflecting Elmhurst's call for changes to the format of EPCs, including greater prominence for carbon, cost and energy metrics.
- Scotland consults on **new energy standards within the Scottish Building Regulations**.
- Lord Foster of Bath's **Minimum Energy Performance of Buildings Bill** receives its first reading in the House of Lords. Lord Foster is lobbying for all domestic buildings in England and Wales to achieve at least EPC band C by 2035, where practical, cost-effective and affordable.



## August



- The Scottish Government opens its **call for evidence and consultation on the potential future development of the Home Energy Efficiency Equity Loan Pilot** to help homeowners fund energy efficiency improvements.
- The new **PAS 2038:2021 standard** for improving the energy efficiency of non-domestic buildings is released by BSI.
- BSI also publishes a **consultation on revisions to PAS 2030 and PAS 2035**. Elmhurst successfully campaigns against proposals within the PAS 2035 consultation that could have collapsed the retrofit market.

## September



- Important structural changes at Elmhurst - Martyn Reed becomes Group MD and Stuart Fairlie becomes MD of Elmhurst Energy Systems Ltd.
- The Scottish Government publishes its **Fairer, Greener Scotland strategy**.

## October



- A reshuffle in Westminster sees MHCLG change its name to the Department of Levelling Up, Housing and Communities (DLUHC), under the leadership of Michael Gove.
- Just before COP 26, the Government publishes its long-awaited **Heat and Buildings Strategy for England and Wales**, including the announcement of £5k grants for heat pumps.
- Alongside the Heat and Buildings Strategy, BEIS launches its **consultation on proposals to phase out the installation of fossil fuel heating systems in homes off the gas grid**, and a **parallel consultation relating to business and public buildings**, as committed to in its 2017 Clean Growth Strategy.
- The Scottish Government publishes its **Heat in Buildings Strategy**, setting out its pathway for cutting greenhouse gas emissions from all Scottish homes and buildings.
- The Northern Ireland Executive consults on **new energy standards and amendments to the Technical Booklet Guidance to Part F** (Conservation of fuel and power).
- The Welsh Government publishes its **response to the Stage 2A review of Building Regulations Part L and F and mitigating overheating in new homes**.

## November



- The United Nations' climate change conference (COP 26) takes place in Glasgow.
- DLUHC and BEIS issue a **progress report on the EPC Action Plan**. Originally published in September 2020, it identified 35 actions that would improve the energy efficiency of buildings.
- Elmhurst hosts its **annual conference** looking at the future of energy efficiency for England.
- Elmhurst takes part in the first working groups working on the next version of **Reduced Data SAP (RdSAP)**.

## December



- The Scottish Government releases a **call for evidence on energy efficiency regulations in commercial buildings**.
- DLUHC publishes its **updated Approved Documents** for English Building Regulations, including new Part L, F and O regulations for new build homes and commercial buildings which come into effect on 15 June 2022.
- As part of the new Building Regulations, **Pulse is recognised as a suitable technology for air pressure compliance testing of new homes and non-domestic buildings**.
- Northern Ireland's Department for the Economy publishes the **Northern Ireland Energy Strategy - the Path to Net Zero Energy**.



## 2022 so far



### January



- OFGEM completes its consultation on **proposals to change the ECO scoring methodology**, moving to a whole-house, multi-measure approach.

### February



- The first wave of funding from the **Social Housing Decarbonisation Fund** is announced, sharing £179m between 69 local authorities in England.
- Elmhurst **responds to the Scottish Government's call for evidence** on its proposed new regulatory framework for energy efficiency in non-domestic buildings.

### March



- The Northern Ireland Government announces its new energy **efficiency standards (Part F)** for homes and non-domestic buildings, to come into force on 30 June 2022.

### April



- BEIS publishes the Government's official response to the design of the next Energy Company Obligation (ECO) scheme for 2022-2026. The scheme, worth £4 billion, delivers energy efficiency and heating measures to homes in Great Britain, targeted at low income and vulnerable households living in the least energy-efficient homes (EPC rated D to G). The scheme will commence in July 2022.



# The way forward

Here are Elmhurst's top 10 big asks to improve the use and relevance of energy certificates, to boost the uptake of low carbon technologies, and to support the retrofit of existing properties as we strive for Net Zero.



## 1. Redesign energy certificates

Energy Performance Certificates (EPCs) were first introduced in England and Wales in 2007. They were never tested beforehand with home buyers or consumer groups to check if they communicated the right information effectively, and over the years all sorts of myths and misunderstandings have grown about these vital documents.

In particular, back in 2007 it was thought that domestic consumers would only be motivated by cost. This is why the domestic EPC rating was set up as, and still is, a cost metric. The A to G rating that we all know simply tells you how cheap or expensive a home might be to run compared to other homes.

Over recent years the perception of energy efficiency has been turned on its head and most

experts now accept that cost is not the only consideration. More recently the focus has been on the amount of energy consumed, or on the carbon emissions generated by that consumption.

We know that different groups of people have different expectations and understanding about energy efficiency today, and that it can change with context. Unfortunately, right now the EPC cost metric is still being used as a policy tool to reduce carbon emissions and therefore climate change. This just doesn't work.

Elmhurst has been calling for the redesign of the EPC for many years. We want to see EPCs giving equal focus to energy consumption, cost and carbon emissions. Fortunately, the national calculation methodologies (SAP and SBEM) can present all three metrics and we believe all three should be

presented in the EPC. We have even designed a new EPC to show how it could look.

Once we have made this change to EPCs, governments can align their regulations to the relevant metric. For example, policy initiatives to tackle fuel poverty can focus on cost, while initiatives on reducing energy use could be measured by energy consumption, and climate change regulations could be based on a measurement of carbon emissions.

## 2. Use the Golden Triangle to inform decision-making

The three nuggets of information about any building are the:

1. Asset rating - the predicted energy performance of the building based upon nominal occupancy patterns (this is what the EPC gives us at present).

2. Occupancy Rating - the predicted energy performance of the building with its current occupants.
3. Energy Consumption - the building's actual energy performance.

This is what we call the Golden Triangle.

All three are invaluable pieces of information about a home or commercial building, but one without the other misses the point.

Asset-based EPCs are often misunderstood. EPCs are based on standardised occupancy patterns (number of occupants, hours of occupation etc) and will therefore not reflect actual use or the actual fuel bills incurred by the occupants. All they do is allow future occupants and buyers the opportunity to compare buildings on a rough like-for-like basis.

An occupancy rating fine-tunes the estimates to reflect actual occupancy, and is therefore much better at giving predictions of people's future fuel bills. But without the asset information it is not possible to know whether it is the building or the occupants' behaviour that is having the biggest impact.

Finally, smart metering is now providing insights into the actual energy consumption and the impacts of occupants' behaviours. But without the asset rating or the occupancy rating, we don't know what to improve.

In short, we need all three assessments.

All three models already exist, and we have skilled experts who can use them intelligently to inform decisions at a local and national scale. We just need to bring them together in a coordinated way.

### 3. Ensure all energy certificates reflect the current state of the property

An energy certificate is typically valid for 10 years, by which time the energy costs and savings available will certainly have changed and so will the property itself, with incremental improvements such as the installation of a new heating system or new windows.

Elmhurst believes that the energy certificate should be re-issued whenever there is a change that impacts upon the energy performance of the building. In addition, and to reflect current fuel prices, an energy certificate should never be older than three years to ensure that estimates and recommendations are relevant.

### 4. Improve Display Energy Certificates and implement them in the private sector

The golden rule for energy certificates is that, in order to be credible, they must be relevant to the building and its current occupants.

Display Energy Certificates (DECs) are the UK's chosen method of doing this in non-domestic (commercial) buildings, particularly in the public sector. These occupancy ratings have

been around for 13 years, there are hundreds of assessors who do them and a dataset of over 300,000 assessments to analyse.

But lack of investment, and a dependence on 'free' government software, has meant that the methodology behind DEC's has not been updated in over 10 years, meaning that opportunities for improvement and the possibility of extending this methodology to private buildings are being missed.

There are many other occupancy rating schemes that we could learn from. We need to understand how the world's best schemes operate, drawing from their experience and building upon the resources, skills and data that are so valuable. When the methodology is fit for purpose then it should be passed to the experts, the established DEC accreditation schemes and assessors, to deliver.

### 5. Don't ignore energy used to cool buildings

With a change to the building regulations, 2022 will see the first major update of SBEM, SAP and RdSAP for over 10 years. These are the science-based national calculation methodologies that underpin all energy assessments.

This update is very welcome. But now that the methodologies are up to date, it is essential that we continue to invest to ensure that they remain as close to the "truth" as possible. The models need continual investment to swiftly adopt new proven technologies and innovation, reflect changes in generation that impact on carbon emissions and

prices and, crucially, amended frequently to ensure they remain the best tools for the assessment of all UK buildings.

As part of this journey, Elmhurst believes that hotter summers, and the adoption of heat pumps (which can be adapted to work in reverse and therefore cool the building), will become common. Using energy to cool buildings should never be seen as a substitute for good design but, where it is used, it should be included within the regulated energy calculation.

It is time to expand and update the methodologies to have a year-round approach to energy performance, especially as the climate around us changes.

## 6. Change the funding mechanism in ECO so that it supports the whole house retrofit approach

The Energy Company Obligation (ECO) is a government energy efficiency scheme in Great Britain imposed on energy suppliers to help reduce carbon emissions from homes and tackle fuel poverty. It has been running for almost 10 years now.

PAS 2030 and PAS 2035, the most recent underlying standards for ECO, were created with a vision that energy efficiency improvements should be built around the needs of the home and its occupants. But the traditional funding model has never encouraged that approach. Instead, the focus has been on funding individual measures, and so a whole set of industry silos have been built around that model.



After many years of Elmhurst campaigning and attending many meetings and working groups, from the Each Home Counts years through to all the various PAS 2035 and PAS 2030 updates, we are finally seeing some positive movement towards changing this model and moving towards a whole home approach to energy efficiency via ECO4.

ECO4 was originally intended to start in April 2022 and run until March 2026 but is now starting in July instead. It is estimated that about 450,000 homes could be upgraded under ECO4, which will focus on upgrading the least energy efficient owner-occupied, private rented and social homes. Much of the activity within ECO will be within the owner-occupied sector, but there is a minimum target of 150,000 private rented properties to be upgraded from EPC band E, F and G, which will help the country to meet its fuel poverty targets. While there are still details that need to be confirmed, the level of funding available over the next four years will mean a significant number of properties will have the chance to be improved.

Elmhurst believes that every home should have an EPC and

that, where improvement is required, government should fund a PAS 2035 Retrofit Plan to empower the consumer. The funding has to move to upfront assessments and planning to ensure the right measures go in the right order for the good of the occupiers.

We want to see homeowners, landlords and tenants receiving clear, expert information about the work that is needed to their homes over the months and years ahead to achieve the desired outcome, whether that be lower fuel bills, a warmer home and/or reduced carbon emissions. Once armed with this information, they can engage with fully qualified retrofit professionals to implement those improvements, knowing that the measures will be to a required standard and, most importantly, right for their homes.

## 7. Use energy assessors to support the introduction of renewable technology

The government has announced that it wants 600,000 heat pumps to be installed each year by 2028 – a 50-fold increase on current levels. Energy assessors could and should be at the front of that customer journey.

Heat pumps, and boilers for that matter, work best when the home is already well insulated, airtight and ventilated right. Energy assessors are trained to understand where there are opportunities for improvement and should be providing advice to consumers on how improvements can be made. New technology can be confusing and energy assessors, who



understand energy efficiency and already interact with homeowners, landlords and tenants, should be utilised to help raise awareness and understanding.

Elmhurst believes that government and industry should utilise the skills and knowledge of more than 10,000 trained and accredited energy assessors to communicate the benefits of renewable technology to homeowners and then support installers with a cost effective and time efficient process for assessing a property's suitability.

### **8. Rebalance the tax applied to low emission fuels and fossil fuels to make heat pumps the right option for both the environment and financially.**

Currently, all green taxes get applied to electricity supply rather than gas. This means that any carbon-busting innovation that runs on electricity (such as an air source heat pump), is going to be more expensive than your traditional gas boiler, and consequently would never come up as a recommendation on an EPC.

Elmhurst believes that now is the time to rebalance the tax applied to low emission fuels and fossil fuels, to make heat pumps more attractive. Price ceilings and floors should be applied to ensure that what is right for the environment is also right for the consumer.

### **9. Measure energy performance to validate retrofit strategies**

Using Smart Meter technology,

we now have the opportunity to measure the actual, real time energy performance of all buildings. This has huge benefits for things like checking compliance with building regulations in the construction of new homes or the retrofit of existing homes, and in proving the effectiveness of our national energy modelling tools such as SAP and SBEM.

The reality is that modelling tools will always be required to identify possible improvements, and to predict the future savings, but these tools do need to be validated.

Using existing measurement technology, such as Elmhurst's Measured Energy Performance, government can create a feedback loop to test the assumptions that the methodologies use and, where there are significant quantifiable differences, to employ other building evaluation measurements techniques, such as measured U Value, air tightness testing and thermal imagery, to establish why.

### **10. Implement a single national framework for lifecycle analysis and Net Zero**

Lifecycle analysis is a method used to evaluate the environmental impact of a product (in this case a building) throughout its life cycle, including the extraction and processing of the raw materials, manufacturing, distribution, use, and final disposal. It's a vital assessment which can genuinely tell us whether a building is "zero carbon" or not.

Although not yet in regulations, the call is for all buildings to become zero carbon. Yet there is no nationally agreed methodology for establishing what that means, no quality assurance to ensure the calculations are meaningful, and no process for ensuring that commitments are delivered.

Elmhurst believes that to achieve net zero carbon emissions we need to measure, mitigate and certify carbon emissions. This should be delivered through an independent certification scheme. We should be using accredited carbon assessors to confirm that emissions at each stage of the lifecycle of the building (from design, construction, use and through to end of life) are measured correctly and that any mitigating actions, such as carbon offsetting, are delivered.

Government should extend the work that they have done with organisations such as RICS in producing a national methodology and engage with the energy assessment community, which has been so successful in developing in-use assessments. We have an army of energy experts within Elmhurst's accreditation schemes who could be trained to assess and verify embedded carbon.

**What would you add to this list?**

**Join in the conversation on social media using the hashtag [#ElmhurstAlmanac](#)**



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