SUSTAINABLE HOMES

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2ND EDITION



blue&green tomorrow

PUBLISHER'S LETTER

"Home is where the heart is."
Ancient saying

American Poet and four-time Pulitzer Prize winner Robert Frost said that a home, *"is the place where, when you have to go there, they have to take you in."* My dictionary tells me that, *"a home is a place of residence or refuge and comfort. It is usually a place in which an individual or a family can rest and be able to store personal property."*

It is all of those things, but in 2015 a home can be so much more.

Our homes are not just a place where we spend time together with family our refuge and a store of wealth. Today they can also be a workplace, a school, a public meeting place, a campaign HQ or power station. Yes, power station.

In the second edition of our Guide to Sustainable Homes we explore how we continue to build homes for yesterday's weather and environment.

The main thrust of this year's report, as was with 2013's, is how to take positive steps to choose a more sustainable home or help the environment without compromising on comfort.

We also look at a solution to the global energy crisis, energy incentives and standards, and how to make your home green. We look at a shared dream of self-sustainability.

We dig out our crystal ball and look into the future at a winning new vision of a utopian green city and the future of housebuilding.

A truly sustainable home has never been more affordable and attainable. We hope you find some food for thought in our guide.





Simon Leadbetter
Publisher, Blue & Green Tomorrow



Photo by JIMMY BAIKOVICIOUS via Flickr

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ABOUT US

PUBLISHER
Simon Leadbetter

WRITERS
Ilaria Bertini
Jemma Collins
Richard Heasman
Charlotte Malone
Tom Revell

HEAD OF MARKETING
Seth Kirby

ART DIRECTOR
Emily Leadbetter

DESIGNER
Chloe-Louise Cole

WEBSITE
www.blueandgreentomorrow.com
www.blueandgreeninvestor.com

EMAIL
editor@blueandgreentomorrow.com

TWITTER
@bluegreentweet
@bluegreeninvest

FACEBOOK
www.facebook.com/blueandgreentomorrow

LINKEDIN
www.linkedin/1ay9Z3E

WRITE
20-22 Wenlock Road
London
N1 7GU

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wealth&ethics

Dear friend,

We're shortly launching our equity fund raising to registered subscribers of Blue & Green Tomorrow. The investment is pending EIS assurance so we believe we have both a highly attractive business model and investment proposition.

We are raising £150,000 for 15% of Blue & Green Communications Limited.

We are now approaching our subscribers to pledge to invest. Securing half or more of our required investment before we launch the share offer will guarantee its take up and success.

Remember, with crowd equity we don't get the investment unless we hit our target so the risk is mitigated across the crowd. If we secure all the funding we need from friends in advance of the launch we will seek over-funding to pursue even more rapid and ambitious growth.

Recent successes on Crowdcube have been sustainability consultancy and events play *TheCrowd* who raised £450,000 and *DoNation* who raised £167,440 for their sustainable living site. And on Seedrs, another crowd equity site, we have renewable energy platform *Trillion Fund* who raised £537,880.

Please pledge to support the Blue & Green share offer. You can also confirm whether you were a crowdfunder in 2014 and whether you wish to convert your crowdfunder support into equity.

With your help we can build a media business that simplifies and promotes sustainability globally, with millions of readers making millions of sustainable investment and spending decisions daily.

Kind regards,



Simon Leadbetter
Publisher | Blue & Green Tomorrow

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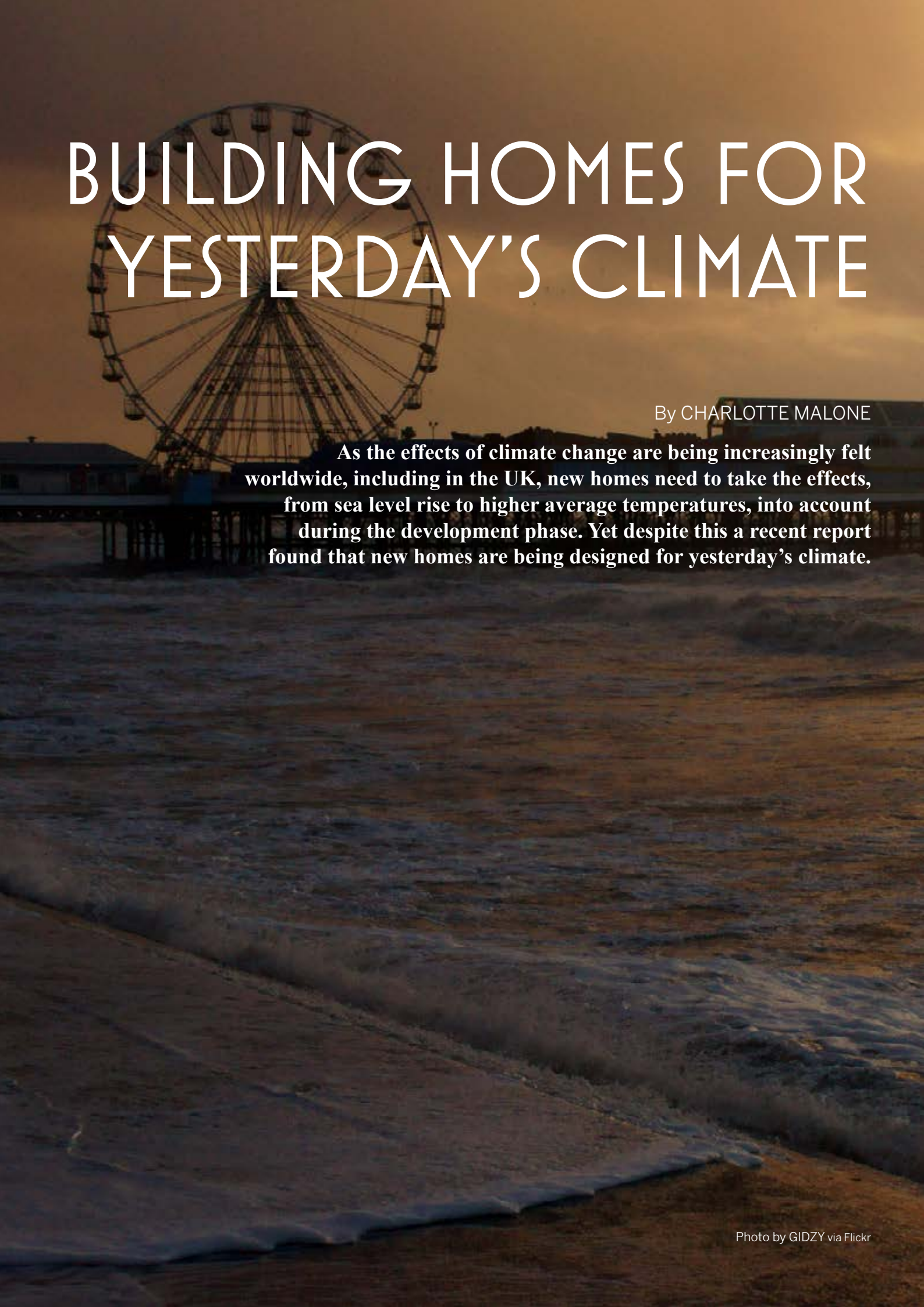
BUILDING HOMES FOR YESTERDAY'S CLIMATE

By CHARLOTTE MALONE

As the effects of climate change are being increasingly felt worldwide, including in the UK, new homes need to take the effects, from sea level rise to higher average temperatures, into account during the development phase. Yet despite this a recent report found that new homes are being designed for yesterday's climate.



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"The impact would have been much worse if it hadn't been for past investments in flood defences..."

In order to prepare for changes in the climate, the Adaption Sub-Committee of the Committee on Climate Change (CCC) is calling for a new building standard to be introduced to ensure that homes being built today are resilient and will adequately deal with challenges in the coming decades. A report from the organisation focuses primarily on two areas – overheating and flooding – and calls for increased investment.

Lord John Krebs, chair of the Adaption Sub-Committee, said, *"The impacts of climate change on the UK in the decades ahead are likely to include rising sea levels, more flooding, summer heatwaves, and perhaps more frequents storms and droughts.*

"We have found good evidence of positive action being taken in a number of areas to safeguard public health and the economy from the impacts of climate change. Despite the disruption experienced by many in the storms this winter, the impact would have been much worse if it hadn't been for past investment in flood defences, flood forecasting and emergency planning."

He added, *"This is a clear demonstration of the benefits that result from investing in greater resilience, but there is no room for complacency."*

The paper from the committee argues that heatwaves are likely to contribute to more deaths in the future as many homes, and other buildings, are already at risk of overheating. As average temperatures increase, this risk will be further amplified unless action is taken to ensure new homes are required to address the issue.

Currently, the report finds, one fifth of homes in England could experience overheating, even during a cool summer. Additionally, flats, which are generally more at risk of overheating, now make up 40% of new dwellings in order to address other issues within housing, such as land limitations. The figure compares to flats making up just 15% of new builds in 1996, highlighting why overheating could become a growing problem within the UK's housing stock.

Furthermore urban green space, which can help mitigate the urban heat island effect, a metropolitan area that is significantly warmer than the surrounding rural areas due to human activities, is on the decline. Since 2001 green space in cities throughout England has declined by 7%, potentially increasing the risk of warming in urban spaces.

The need to consider the effects of a warming planet is important as by the 2040s half of all summers are expected to be as hot, or hotter, than in 2003. During

Left photo by JACK TORCELLO via Flickr

Right photo by GAVIN SPENCER via freeimages.com

"Events such as last winter's storms and floods illustrate the costs of a lack of resilience, with many thousands of people forced to leave their homes..."





Left photo by ELLIOT BROWN via Flickr

Right photo by BERIT WATKIN via Flickr

the 2003 heatwave tens of thousands of people died prematurely across Europe.

Despite the risks the CCC found there was a low level awareness amongst the public and as a result a low level of action to adapt homes. The organisation adds that because building regulations are not currently seeking to address the issue of overheating new buildings are actually adding to the problem.

In order to tackle the growing problem, the CCC calls for all house builders and designers to take into consideration the health risks of overheating now and in the future. The report advocates "*cost-effective solutions*" rather than relying on air conditioning, which could prove expensive and exacerbate the urban heat island effect. Instead, the report highlights solutions such as improved ventilation, tinted windows, and external insulation.

When it comes to flooding, the recent extreme weather seen during the winter of 2013/14 highlights the need for action and the potential wide reaching effects. Extreme weather affected thousands over the period, with some areas remaining flooded for weeks.

The report notes that evidence is emerging that climate change is linked to unusual weather events, including UK winter storms, suggesting such occurrences are likely to be commonplace in the future.

In addition to homeowners facing an increasing number of storms, global sea levels are expected to increase. Over the course of the 21st century the report states that sea levels rose by 16cm, making tidal flooding as a result of a surge, such as that seen in December 2013, more likely.

Further amplifying this problem is that fact that more homes are being built in flood risk areas, meaning that costs from flooding could increase at a faster rate than the extreme weather events themselves. As a result, the CCC calls for investment in flood defences and mitigation efforts to keep pace with the risk.

"Events such as last winter's storms and floods illustrate the costs of a lack of resilience, with many thousands of people forced to leave their homes, businesses and transport disrupted, with the associated costs to the economy and to well-being." the report states.

"Building resilience for the future is an essential component of the nation's strategy for a healthy population and growing economy."



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CHOOSING A MORE SUSTAINABLE HOME

"To show the public that sustainable living can be affordable and attainable, breaking down the barriers that are holding people back..."

By CHARLOTTE MALONE

Sustainable living and housing is a growing trend, yet still remains a relatively niche area. Global sustainability ambassador Eminè Mehmet asks readers, 'Why wouldn't you choose a more sustainable home?'

As an ambassador for sustainability, Mehmet focuses on spreading the word and reaching out to people who may not have considered sustainability and the benefits it can bring. She explains that so far the issue has been portrayed as political, which has led to many people feeling they don't understand the concept and feeling as though they can't relate to it.

EMINÈ MEHMET



Part of her role as an ambassador is to show the public that sustainable living can be affordable and attainable, breaking down the barriers that are holding people back by demonstrating that such a lifestyle is accessible to everyone.

In order to achieve these aims and act as a change agent, Mehmet regularly writes articles on the subject and speaks at events, such as the HIA Sydney Home Show, of which she is a featured partner. During these events Mehmet will have a stage designed with sustainable products, enabling her to talk specifically about these items.

"The purpose of this year's home show was to show people how they can create, build and renovate a home using sustainable products," she explained.

"The aim was to show people that it is possible to have a sustainable home, to renovate or build a new home using sustainable products, these products are easily available and they don't necessarily cost you more than a standard product."

Mehmet argues that being sustainable doesn't necessarily mean giving up your lifestyle and home comforts but involves making different, considered choices. The changes range from easy gains, such as switching your home's light bulbs to more energy efficient LEDs, to installing solar panels to become an energy generator and conserving water through efficient products.

Despite the benefits of making your home more sustainable it is still a relatively niche market, and Mehmet believes one of the biggest challenges to making it more mainstream is a lack of information and understanding. As a result, she believes



Photo kindly provided by UBIQ

"Show them their products, show them the benefits of it and show them where they can get the product."

engagement is vital for the future growth of the sector. She explains showing people that the products are often readily available and equipping them with the information needed to make informed choices could go a long way to boosting sustainable living.

Mehmet added, *"I think we need more people talking about sustainable products and I think we need more of the suppliers of those products to market them to the public: to show them their products, show the benefits of it and show them where they can get the product."*

When making changes in homes people often think about energy efficiency and water saving as these are the most discussed areas and products are widely available. However, Mehmet notes that thinking about the wider consequences of a purchase and how long the product will last is something more consumers should be considering.

Mehmet said, *"Consumer can also be what is termed as a conscious or mindful consumers and be aware of what they're buying and what's in it: what it's made from, where does it come from, can it be recycled, what kind of chemicals and toxins are in it?*

"By becoming more conscious and aware of what they're purchasing and bringing into their homes or using on themselves perhaps they can then reduce their impact on the environment and hopefully buy less and only buy what they need."

She continued that by being a conscious buyer and not impulse purchasing consumers could have a positive effect on the environment. Often products can end up in the bin and eventually in landfill, which causes issues for the environment, if consumers don't consider what its effects are and why they are purchasing it.

Looking to the future, Mehmet believe that large organisations, including suppliers and manufacturers of products, are beginning to make a *"big effort"* to supply more sustainable items, from food to personal care. As a result of this, sustainable products will becomes more affordable and accessible for the general public, potentially leading to an increase in uptake and wider awareness.

Mehmet concluded, *"I think sustainability will just grow and this technology and innovation will create more sustainable ways of living, until living a healthy sustainable lifestyle will be the norm, not the exception. That really is the goal: to make it part of everyday life, not just an add-on or something that's a special thing."*

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HELP THE ENIVIRONMENT WITHOUT COMPROMISING ON COMFORT

"We want it to actually be a nice comfortable, stylish, family home that fulfills all our needs but is also very energy and water efficient."

Tim Nicholson retrofitted his 1960's end of terrace town house in central north Oxford. The project, Oxford Green House, has seen the family generate renewable energy and dramatically cut carbon emissions whilst at the same time enjoying a comfortable and stylish family home.

By JEMMA COLLINS

Photos kindly supplied by Tim Nicholson

The family bought the property in 2010 and moved in this April. Tim Nicholson and his wife Joanne originally had a small interest in the environment and sustainability, but that changed after a "*crazy journey*".

Nicholson explained, *"We left our jobs and we drove from Oxford in England to Oxford in New Zealand in a 50 year old Morris Oxford car and it was a bit crazy. We were fund raising for the red cross and it was a real adventure and we had lots of fun, but one of the sort of unexpected consequences of that journey was that we become more aware of environmental issues."*

On their travels they were inspired by the green energy housing projects they saw and after the trip they decided to take measures to help reduce their carbon emissions. Nicholson trained as a chartered surveyor, and is now a technical sales advisor for the Renewable Energy Co-operative.

There are many energy saving measures put in place in the house as well as renewable energy generation. Nicholson explained the challenges they faced and the benefits of creating the green home.

"So we bought the house in 2010 and we recognised immediately that it needed refurbishing but it was an opportunity to refurbish it in a way to make it very low energy and we hope very sustainable," he said.

"Nicholson describes the benefits as not only cutting carbonemissions and helping the environment, but also saving money on energy bills."

They insulated the roof, the outside back and sidewalls and put insulation under the concrete floors. The house now has triple glazed windows and they are disconnected from the mains gas. Instead, use a wood burning boiler stove which heats the house and water.

Plenty of energy efficient lighting has also been installed with the advice of sustainability company, Save Money Cut Carbon.

Save Money Cut Carbon work with a number of organisations and individuals to help reduce consumption of energy and water and become more energy efficient (See page 24 for more details).

Nicholson was keen to generate renewable electricity, a vital move away from fossil fuels. Along with solar PV, three large solar thermal panels were installed for hot water. The thermal panels are nine square metres in total and Nicholson said, *"Our hot water cylinder is a bit different, it's called a thermal store and so the heat from the solar thermal panels goes into the thermal store and then it's available for domestic hot water, showers, baths and taps."*

The family invested in showers that are not only efficient in terms of water use but also great quality.

"I think one of the aspects of the project as a whole is that we don't want it to be uncomfortably efficient, we want it to actually be a nice comfortable, stylish, family home that fulfills all our needs but is also very energy and water efficient," added Nicholson.

During the winter the wood-burning stove will be used to heat water as well as the house. The stove produces 15 kilowatts (KW) on energy, with 9KW for hot water and 6KW for the room.

The family will register for the government's renewable heating incentive scheme, to get financial support for the wood-burner.

Nicholson described the benefits as not only cutting carbon emissions and helping the environment, but also saving money on energy bills.

"From my point of view I'm very motivated from an environmental perspective, so I'm very keen to cut my carbon emissions," he commented.

"I think it's also important to try and cut one's costs in terms of the rising energy crisis, you're actually saving money."

With no longer having a gas bill and getting finance from the renewable heating incentive and the government Feed-in-Tariff for the solar PV system, the costs are expected to be very low.

"In terms of running costs, the house will actually be making us money, we won't really have any meaningful bills other than the water bill and council tax I suppose. It will be much more a source of income than a cost," said Nicholson.

The family has reduced their carbon footprint dramatically and estimates they have saved 9,000 kilowatt hours of gas since the retrofit.

"From our house point of view, our carbon footprint will be insignificant I mean we would have pretty much wiped it out," Nicholson said.

Keen to share their experiences, the family held an open day as part of a green open homes event in Oxford. About 30 people came to look around their









"From our house point of view, our carbon footprint will be insignificant I mean we would have pretty much wiped it out"

house and Nicholson said it's always helpful for people to see an energy efficent house for themselves.

Nicholson said, *"From my perspective, although we now have a lovely house that is very energy efficient. I don't want to just sit in it smugly and enjoy it, actually I'm really keen to share our experience and help others learn from what we've done."*

He has created a website – www.oxfordgreenhouse.co.uk – to help those thinking of doing the same. It includes information about suppliers and materials used in their retrofit.

Nicholson believes there needs to be more support from the government to help secure a zero-carbon future and make the existing housing stock more energy efficient.

"There's a massive challenge in terms of retrofitting and I mean tempting though it is to build a nice shiny-new eco house, actually that's not solving the problem," he said.

"The bigger problem to my mind lies in retrofitting our existing housing stock because by 2050 some 80% of our existing housing stock is still going to be around and it needs to be zero-carbon if we're going to perhaps stand any prospect of limiting temperature rise of anything close to 2C."

Nicholson added that the technology is available to move towards a renewable, green future, the government just needs to support people as they try and make their homes more energy efficient.

WRITE FOR US



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Journalism is changing rapidly through a digital and social media revolution. It is no longer the preserve of press barons and elite groups; journalism is now democratic and everyone has a voice.

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A GLOBAL ENERGY CRISIS SOLUTION?



By JEMMA COLLINS

As the world faces devastating effects from climate change if enough isn't done to reduce greenhouse gas emissions, people up and down the UK are helping reduce their carbon footprint through the SuperHomes network.

SuperHomes is a network of households across the UK with green credentials committed to reducing carbon emissions and leading the way in the sustainable housing sector. The initiative was founded by the charity, Sustainable Energy Academy (SEA) seven years ago and is supported in collaboration with the National Energy Foundation (NEF).

SuperHomes aims to help make the current housing stock more energy efficient. To qualify as a SuperHome households must have achieved a 60% reduction in carbon emissions.

The project inspires homeowners to reduce their carbon footprint through open days around the country where people share their advice and knowledge on the refurbishments they have made.

Along with open days, SuperHomes also offers useful resources such as information and reviews on suppliers and forums for people to share green ideas.

Gordon Glass, online marketing manager for SuperHomes, explained the benefits of joining the scheme, *"SuperHomes recognises the achievements of homeowners who have gone the extra mile in refurbishing an older home to this very high level of energy efficiency.*

"We can then help the owners share their success by promoting their open days, giving them a web presence and by involving them in any media opportunities that may arise."

Open days are held across the country in March and September. This year will see a number of people open their homes throughout September, with the first few taking place on Saturday September 6.

There are currently 185 registered SuperHomes and an estimated 85% of the population in England live within 30 miles of one of these green homes.

To date the open house days have attracted 70,000 visitors and the charity have high hopes for this year's month of open days.

"Last September's open days attracted 3,695 visits, which was the most yet. We'd love to repeat this success. We've already had 60 SuperHome households confirmed to open this September so we're on track," said Glass.

The open days are free, but visitors are advised to book online as soon as possible as there are limited spaces on the tours. The SuperHomes website has a



varied list of categories to help when deciding which green homes to visit.

Homeowners choose to retrofit their homes, not just for the benefits to the environment, but also to save money on energy bills and increase the comfort of their own homes.

Types of improvements include installing energy efficient lighting, improving insulation and heating systems and renewable energy generation.

Glass explained they have seen significant growth over the last year. There has been a 12 fold increase in the number of online visitors to the SuperHomes website from 2011–2013 and the charity has also seen growth in local open home group events across England.

"Around 40 events have taken place so far in 2014 with funding support from the Department of Energy and Climate Change (DECC). I don't think it's an exaggeration to say that DECC were encouraged to fund this work by the success of existing networks like SuperHomes," added Glass.

There are benefits of going to an open day and viewing a house that has already had a retrofit, as Glass explained, *"Visiting a SuperHome gives you the chance to connect with the owner and their home improvements in a way that reading about them won't.*

"A visit provides more of a 'touch and feel' experience. You get the inside story as the tours and Q&A sessions let you quiz the owners. You can discover what worked and get frank feedback on anything that didn't."

In June this year SuperHomes was awarded as one of the best projects of the year in the communication category at EU Sustainable Energy Week. Glass said he collected the award on behalf of the volunteer


"Visiting a SuperHome gives you the chance to
connect with the owner and their home improvements
in a way that reading about them won't."



"We've got to inspire the early adopters who are going retrofit and inspire others to take action."

homeowners who help spread the message of low-carbon living.

He added, *"It was already exciting to be shortlisted for the awards, but to win an award was the icing on the cake. The European Commission made the award and I was lucky enough to meet the 30 award nominees and hear about their projects."*

SuperHomes has ambitious plans for the future, and really want to inspire as many people as possible. Glass said, *"We are aiming for five hundred exemplar homes and 2 million personal or virtual visits to SuperHomes by 2020. It's hugely ambitious but we think it is needed.*

"If we want to get anywhere near the government's plan to reduce carbon emissions by 80% by 2050, we think we've got to inspire the early adopters who are going retrofit and inspire others to take action."

He added, *"We'd like to coordinate more peer to peer advice and get more reliable detailed information out there. We're currently seeking additional sponsors and funding partners to help us realise these ambitions."*

To become a Superhome, providing you think changes made to your home have reduced carbon emissions by 60%, you can fill in an application form online where you will be informed by one of the team if you meet the SuperHome standard.

ENERGY INCENTIVES

"The UK government needs to reach target of reducing greenhouse gas emissions by 80% by 2050. This is part of the UN's goal to limit global warming by 2C by the end of this century."

By JEMMA COLLINS

There are a range of schemes aimed at providing incentives for the public to invest in renewable technologies, make energy savings or reduce their carbon emissions. Some examples are below.

ENERGY COMPANIES OBLIGATION (ECO)

Introduced in January 2013 the Energy Companies Obligation (ECO) aims to support those living in fuel poverty and reduce energy consumption in the UK.

Through the £1.3 billion scheme the government funds energy efficiency measures in low-income households. The scheme aims to provide heating and insulation measures in areas of low income and help with installing solid wall and hard-to-treat cavity wall insulation.

The ECO will run until March 2015 and is funded by energy suppliers who decide how much subsidy each customer will get.

RENEWABLE HEATING INCENTIVE (RHI)

The Renewable Heating Incentive (RHI) is a scheme by the UK government that aims to encourage the use of low carbon technologies. The incentive pays members of the public that generate and use renewable energy to heat their home and is said to be the one of the first in the world.

The aim is to move away from fossil fuels towards clean, green energy. The RHI will pay for rates for energy generated from technology such as heat pumps, biomass boilers, pellet stoves and solar thermal panels.

The domestic RHI launched in April this year, following on from the payments given to those in industry and public sector organisations in 2011. Ofgem delivers the scheme and it covers domestic dwellings and self-builds but not new build properties.

GREEN DEAL HOME IMPROVEMENT FUND

The Green Deal initiative was relaunched by the Department for Energy and Climate Change (DECC) in June this year. The deal saw an overwhelming response with a surge in applications causing the scheme to close in just six weeks. The Green Deal let homeowners apply for cash back on schemes designed to make their homes more energy efficient. The scheme was meant to run for one year and there was up to £120 million available.

The government say they will consider a further offer should funds become available and say all valid vouchers must be claimed by September 30, 2014.

FEED-IN-TARIFF

The Feed-in-Tariff scheme was set up in 2010 and means members of the public can get money back from their energy supplier if they generate their own electricity.

The scheme aims to encourage electricity generation through sources such as solar panels or wind turbines.

Energy regulator Ofgem administers the scheme and applicants can calculate how much they could earn through the Energy Saving Trust calculator. [http://www.energysavingtrust.org.uk/Generating-energy/Getting-money-back/Feed-In-Tariffs-scheme-FITs]

Along with saving money on energy bills, applicants can get paid for any surplus electricity they export to the grid.

MAKE MY HOME GREEN

By CHARLOTTE MALONE

Changes to government energy efficiency schemes holding sector back
A combination of the government changing energy efficiency incentives and a lack of knowledge amongst homeowners is holding the industry back, according to Patrick McCool, director of Make My Home Green.

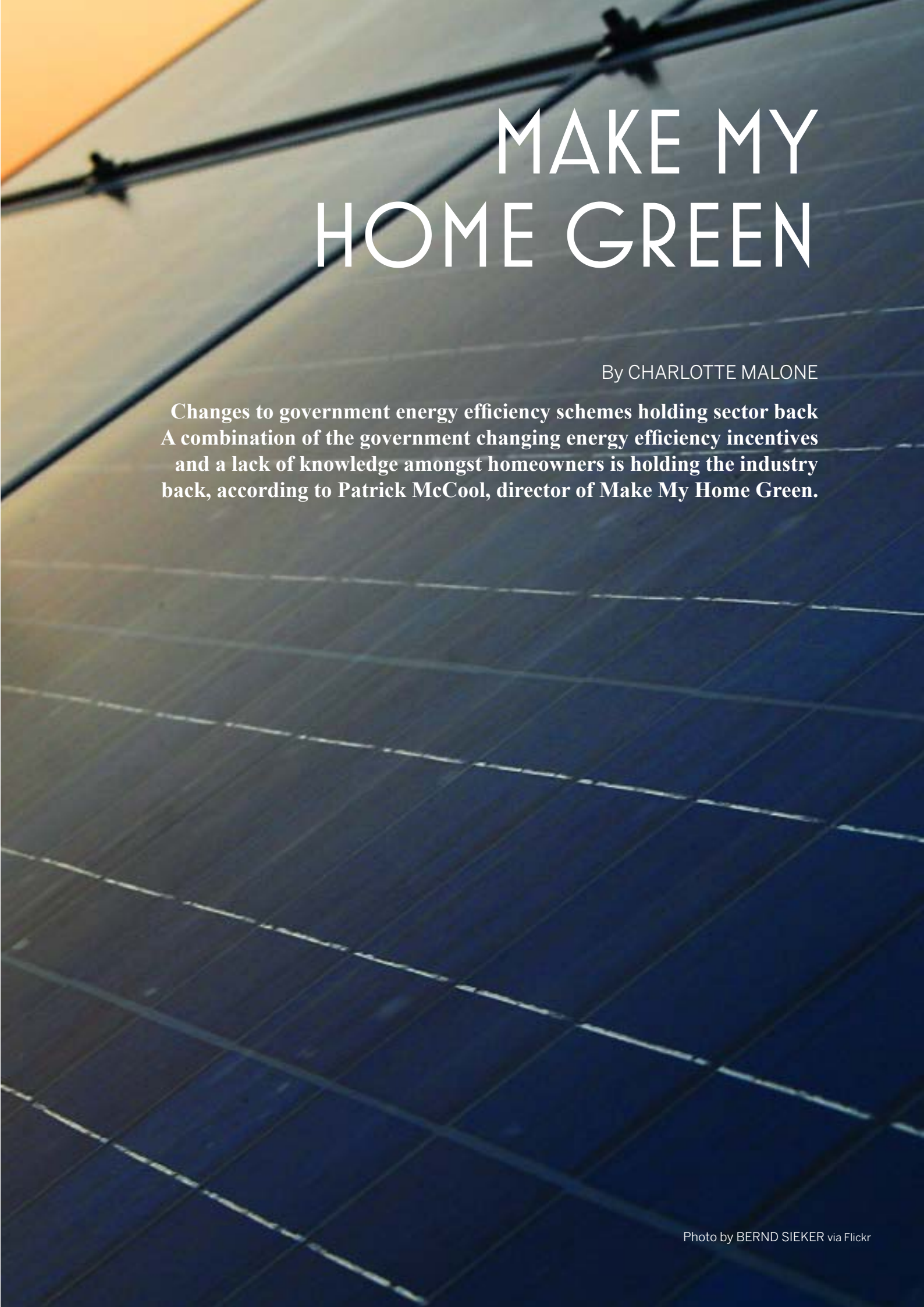

Photo by BERND SIEKER via Flickr

"The government initiative was designed to help businesses and homeowners embrace energy efficiency technologies"

***"The government are taking the wrong approach in terms of incentives and they also keep changing the incentives. That is the single greatest challenge facing the energy efficiency industry,"* McCool said.**

McCool explained that since January this year the government has completely changed its Green Deal incentive three times, placing increased pressure on businesses operating in the industry and creating further confusion among homeowners who then decide not to act.

The Green Deal in particular has come under fire. The government initiative was designed to help businesses and homeowners embrace energy efficiency technologies. The scheme was widely regarded as failing to encourage homeowners to install energy efficiency measures so a new phase of the deal was launched.

The Green Deal Home Improvement Fund launched in June, after businesses were given just four weeks to prepare for the changes. McCool describes it as a *"really good scheme"* that was *"very popular"* among homeowners. However, the fund remained in place for just six weeks before the government decided that the money was being claimed too quickly. They changed the grant from £6,000 to £4,000, which led to the whole of the fund being claimed within the space of a few days.

"What they were trying to do was make sure the fund stayed in place for longer and what they managed to achieve was closing the fund down within 36 hours," McCool said.

"The consequences of this for homeowners is that there is a lot of confusion and the consequences for businesses is that you have this constant surge and drop off in work. What the homeowners need is trust, they need to be able to trust the people delivering their work, and what the customers and the industry need is stability."

The constant changing has led to some in the industry always searching for the *"new trick"*, McCool continued, which is bad for conscientious businesses and homeowners. He added that the government is not thinking through the consequences of their actions before making changes, describing it as *"incompetence on a grand scale"*.

Setting out an alternative method to encourage homeowners to take up energy efficiency measures, McCool said, *"What we need to be able to do is first of all make this process something people aspire to.*

"Most people think energy efficiency is pretty boring but if you live in a freezing home and someone comes along and puts in insulation and an efficient heating system and all of a sudden your comfortable and your bills have gone down that makes you happy and really improves the quality of your life.

"It also tackles the energy efficiency problem, the energy security problem, it tackles climate change and it creates jobs."

Despite all these benefits the number of people taking steps to improve the energy efficiency of their home is still relatively small. McCool explained that this is down to lack of knowledge and lack of money, but he believes the government could address these



"It also tackles the energy efficiency problem, the energy security problem, it tackles climate change and it creates jobs."

issues by subsiding a loan to homeowners, rather than subsiding products. For example, the majority of current incentives focus on a particular measure, such as insulation, instead of measures that best suit the property and homeowners.

"What governments should do in the future is very simple. Houses should be assessed, as they are now, by accredited assessors. The work that is done should be done, as it is now, by accredited installers. The house should be assessed and a plan should be made on how to improve that home's energy efficiency by 60%," McCool said.

"And then it should be worked out what the best way to achieve this is and how much it would cost. Homeowners should then be able to go to the government or a government-sponsored bank and they should be able to borrow that money – subsiding the loan rather than the products. And the finance to do this should be cheap – at least as cheap as a mortgage, if not cheaper."

If this simple mechanism was put in place for a defined long-term period of time, such as 25 years, the homeowners that are interested in energy efficiency but put off by complexity and cost would begin to upgrade their homes, McCool concluded.

Make My Home Green was founded in 2008 by Patrick McCool and gives independent advice to homeowners on how to make their homes at least 60% more energy efficient.

Photo by JOHN STEVEN FERNANDEZ via Flickr

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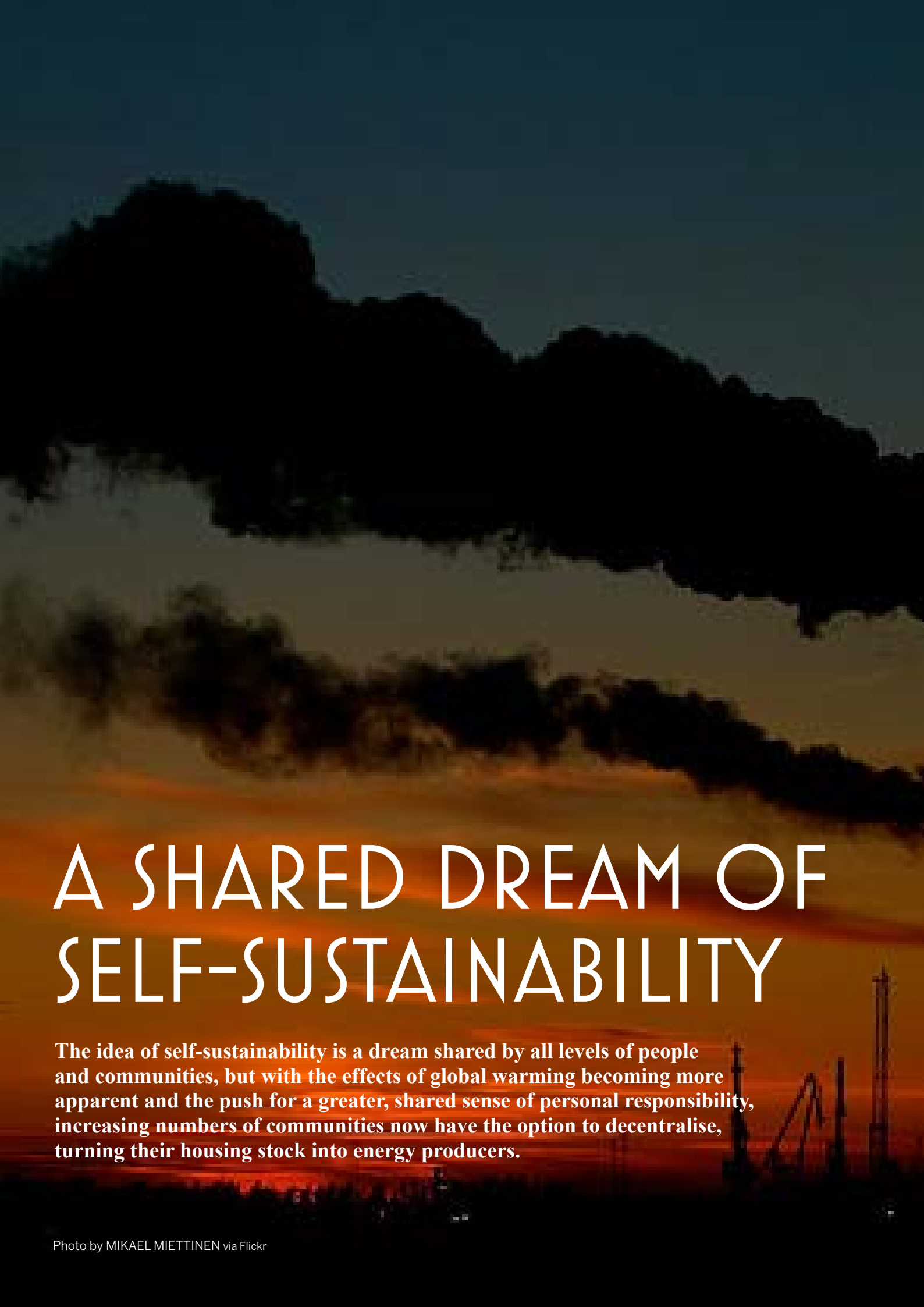

A SHARED DREAM OF SELF-SUSTAINABILITY

The idea of self-sustainability is a dream shared by all levels of people and communities, but with the effects of global warming becoming more apparent and the push for a greater, shared sense of personal responsibility, increasing numbers of communities now have the option to decentralise, turning their housing stock into energy producers.

Photo by MIKAEL MIETTINEN via Flickr



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"The inspiration behind microgeneration is the supply of heat and electricity by smallholders to small areas."

Notably rural, these communities have increasingly taken a greater role in managing their energy supply as a whole entity, rather than an individual – which is known as 'microgeneration.'

The inspiration behind microgeneration is the supply of heat and electricity by smallholders to small areas. These can be businesses, individuals or communities – all to meet the needs of the relevant party.

By breaking away from the centralised power grid, the community in question would lower their carbon footprint, becoming self-sustainable and taking a greater role in the functionality of the area they wish to power. This also offers positives like greater control, and challenges from government.

Clare Martynski, of Forum for the Future, an independent non-profit organisation established to help governments and businesses solve sustainability problems, discusses the positives and negatives of community energy, and how it can improve the lives of locals and homes.

"A great incentive is of course, the low carbon benefit, which helps the local area and that of the individual but there can also be financial benefits," she said.

"There are incentives for organisations who do engage in this practice, but they have to be community based groups, like cooperatives. Profits subsequently do not leave the area.

"With this, communities can potentially receive lower costing energy and play a greater role in the localisation of energy production."

Community energy has the potential to reposition renewable energy technologies, which are fairly misunderstood, as they become an asset to benefit entire communities, with the education factor a bonus.

"Self-sustaining communities, with very little impact on the environment around them, working together, in harmony with their environment."





Left photo by MR.TINDC via Flickr

Right photo by JULIAN via Flickr

"It brings renewables into the public space. With more and more people are insulating their homes or installing solar panels on their roofs, this brings it to the whole community," Martynski said.

"People are now more able to have control over their energy, or at least have more of a say over how it comes to be."

She added, *"Along with the positive environmental prospects, these kinds of projects provide local solutions to local problems."*

Regardless of the positives, community energy projects still face challenges from across the spectrum. The government is still yet to establish a clear policy directive, which keeps the industry from growing as efficiently as it should.

As Martynski describes, *"There is still a lack of complete stability in the policy landscape, both here in the UK and in the EU, which would allow it to prosper.*

"There is also still a lack of visibility of these community energy projects amongst the wider public; most people only see the large renewables projects led by corporates."

The domestic renewable market, especially in solar, is the smallest aspect of the total revenue produced by the solar market, largely because companies who provide the service are subsidised by the government – making the service free.

However, community energy projects are largely voluntary based, managed by community members who have an interest and concern for their environment.

Martynski said, *"The industry is still heavily reliant on volunteers, who ultimately earn nothing. Although there are a number of mentoring schemes available, the biggest challenge still remains in getting the scheme actually going."*

But the industry is nevertheless growing. Rising utility prices and a greater concern for the environment is proving enough of an incentive to actually get people looking into the subject of localising energy supply, *"with the prospect of projects becoming far easier to develop,"* predicted Martynski.

This is also reflected in the urban market, too. *"Small community energy groups like Hackney energy are developing this very idea, but in an urban environment,"* she added

Currently, there are a handful of small energy developments emerging across London, taking an idea that has been greatly used and successful in a rural setting and making its city based. An exciting prospect, for an emerging idea that reflects the nature of the industry as a whole. Self-sustaining communities, with very little impact on the environment around them, working together, in harmony with their environment.

ENERGY STANDARDS

"Certification bodies have played an essential role in the rise of green buildings. Such rating systems provide clear standards and expectations for developers and certainty to purchasers, renters or stakeholders."

By TOM REVELL

In lieu of a universal system, many rating systems have been individually developed and are now recognised around the world. Of these, three lead the market.

BUILDING RESEARCH ESTABLISHMENT ENVIRONMENTAL ASSESSMENT METHODOLOGY (BREEAM)

With more than 200,000 buildings certified according to its ratings, across more than 50 countries, the UK-based BREEAM is the world's leading green building assessment method.

Its standards have been used to judge projects ranging from PwC's London headquarters – which received the highest ever BREEAM rating in December 2013 – to the proposed sustainable stadiums of the 2018 World Cup in Russia.

Its various schemes encourage designers, clients and all involved in building design and construction to consider low-carbon and low-impact design, and to minimise energy and resource consumption.

A BREEAM assessment considers criteria such as energy and water use, pollution, waste disposal and management processes.

A recent market report from DLA Piper found that BREEAM is the most popular green building certification body among real estate investors. A survey found that 60% of respondents identified BREEAM as the best certification body out there – ahead of LEED, who came second with 54%.

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)

Launched by the US Green Building Council (USGBC), LEED rating systems are also widely popular across Europe, according to DLA Piper's polling. Around the world, more than 1.5 billion square feet of development area is LEED certified.

Recently updated to include new types of building – from data centres to hotels – the standards "advance environmental footprint issues, like climate change, and encourages optimization of energy and water use", USGBC say.

Ambitiously, the ultimate aim of the LEED rating systems is to go beyond the aim of buildings having a net zero impact to a net positive impact.

DEUTSCHE GESELLSCHAFT FUR NACHHALTIGES BAUEN (DGNB)

The rating system of the Deutsche Gesellschaft fur Nachhaltiges Bauen (The German Sustainable Building Council) professes to be a "unique and holistic" system. It sets itself apart by judging the full cycle of a building, from construction to demolition.

Though most popular in its homeland, the DGNB system, like LEED, can be used worldwide.

It can be used to certify some 15 different types of building, including existing and new office buildings, administrative -, residential and mixed-use buildings.

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THE GREEN REGISTER

"Over the last 14 years the organisation has gone from being London-based to operating nationally, building up a reputation for providing high quality, low cost training in sustainable construction."

By CHARLOTTE MALONE

Greater legislation, along with public education, is needed to push the sustainable construction industry further, says Lucy Pedler, director of The Green Register.

Pedler trained as an architect and wanted to combine this with her passion for the environment, this led to The Green Register being launched in 2000. The website was launched to address three barriers to sustainable building that Pedler identified in the late 90s. These barriers were the lack of independent information for construction professionals, people struggling to find those in the industry that had a real commitment to environmental building and those in the industry feeling isolated because sustainable building was considered an alternative, not mainstream, concept.

Over the last 14 years the organisation has gone from being London-based to operating nationally, building up a reputation for providing high quality, low cost training in sustainable construction. As The Green Register is a non-for-profit it has also established itself as a provider of unbiased training.

The Register itself offers users access to a range of construction professionals that have demonstrated a commitment to sustainable x practices. All members undertake two days of training, and whilst they are not obliged to participate in further training many do.

As The Green Register has grown, so too has the sustainable building industry. Pedler notes that over the last decade sustainable building trade show Ecobuild has gone from *"very small and modest"* to *"enormous"*, commenting tongue in cheek that *"everybody is now eco"*.

"Now if you go to Ecobuild you'll see some very interesting products and developments in the sustainable building materials and a heck of a lot of eco bling – where you've got the exact same products with the word 'green' and 'eco' sprinkled over it with practically nothing changed," Pedler said.

"Everyone sees sustainability as being important now but there's a lot of greenwash out there still. It's good that everyone is now taking it seriously but we have yet to get to the point where we have true commitment from all construction professionals and manufacturers."

The greenwash itself presents a challenge for those interested in sustainable construction. Pedler explains that wading through the information to find independent advice is key. She added, *"It's not straight forward to wade through the greenwash you need to A have the time and B know what you're looking for."*

This is an area where The Green Register aims to address the issue through its training courses. Those that have attended a course should know what they are looking for and be able to cut out the greenwash.

Another area that is holding the industry back is awareness, Pedler commented, *"I think one of the challenges in the sustainable building industry is trying to persuade people that this is important. We get more and more clients now that want to minimise their impact on the environment but that is not universal."*



Photo by JEREMY LEVINE via Flickr

"Such steps could lead to a truly sustainable building industry in the UK."

One way of focussing sustainable building in the minds of the public and wider construction industry, would be through increased legislation and reflecting environmental costs in prices, Pedler explains. She notes that often the environmental cost of products and materials are not reflected in price but if they were it could lead to more people considering the wider implications of their building and taking more sustainable steps as a result.

Such a move could also help educate the public, which overall could make a *"huge difference"* to the sustainable housing sector. Pedler explained that there are a number of ways to achieve this, including government campaigns that explain why climate change mitigation is so important because it's a *"long term concept and people often want short term gain"*.

When it comes to legislation Pedler notes that it often gets watered down by *"people who don't want to do the right thing"*. Some house builders, for example, have tried to lobby the government to water down part L of the building regulations, which Pedler describes as *"one of the few pieces of legislation we've got that can actually effect change"*.

She added, *"The government has wrongly identified some of the standards, such as the Code for Sustainable Homes, as being a barrier to development. So they've now scrapped the code, which wasn't a barrier to growth. It was one of the few tools that we had that could get a truly sustainable building – so we do need tougher legislation."*

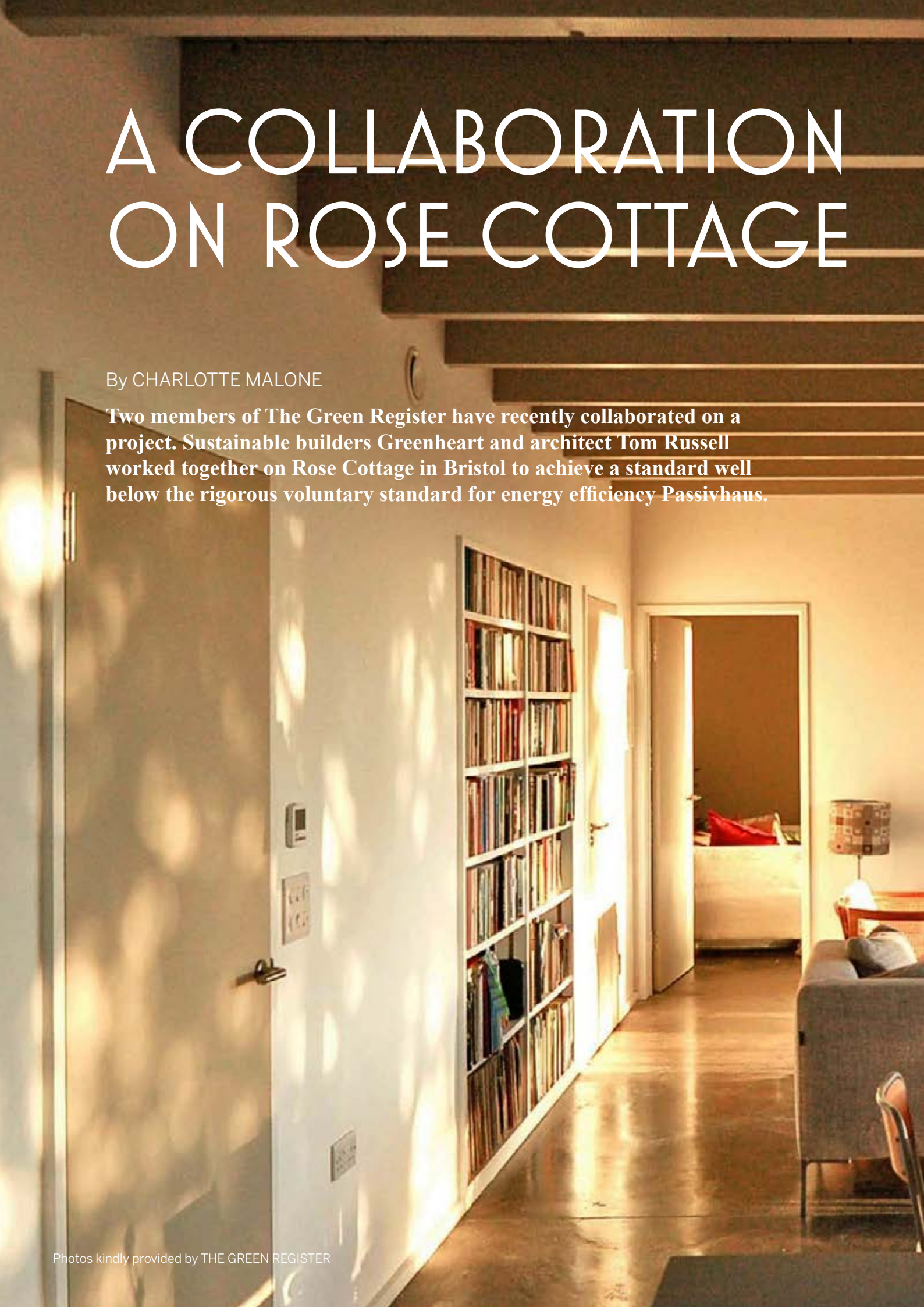
When asked what the government should be doing, Pedler said more stringent building standards, in terms of heat loss, air tightness and using low impact materials, were needed. Many countries in Europe have already implemented stringent standards and businesses had not been affected negatively, she noted.

"If it were a national standard everyone would have to do it equally, rather than one local authority having to stick out their neck out and ask for more stringent standards," Pedler concluded such steps could lead to a truly sustainable building industry in the UK.

A COLLABORATION ON ROSE COTTAGE

By CHARLOTTE MALONE

Two members of The Green Register have recently collaborated on a project. Sustainable builders Greenheart and architect Tom Russell worked together on Rose Cottage in Bristol to achieve a standard well below the rigorous voluntary standard for energy efficiency Passivhaus.



Photos kindly provided by THE GREEN REGISTER







"Such a high standard is only achievable if all members of the workforce understand the concept"

The Green Register is an online register of members like Greenheart and Tom Russell that is free to search. The register consists of construction professional who have all demonstrated their commitment to sustainable building by attending the minimum of two days training with the organisation.

The project involved the demolition of an existing cottage within an old walled garden and the building of a new, highly insulated, timber framed family home. The design of the new house was simple and clean, combining new cedar cladding, velfac windows and square aluminium guttering with materials reclaimed from the old cottage, including tiles and bricks.

The finished property has an airtightness rating of 0.35 m3/m2hr, allowing it to obtain the Passivhaus standard. Passivhaus results in ultra-low energy buildings that require little energy for space heating or cooling. In order for the property to be certified, the building must not leak air more than 0.6 times the house volume per hour.

The builders note that such a high standard is only achievable if all members of the workforce understand the concept, and have the ability and experience to put it into practice, highlighting the need for those considering building a sustainable home to carefully select those they are working with.

As a result of the standard of airtightness achieved the house needs very little heating but does have under floor heating downstairs and a wood-burning stove in the living room. The property also benefits from solar thermal evacuated tubes, which provide a back up to the hot water system.

Russell, who is also owner of the cottage, said, *"This type of low energy, air tight construction demands skills that are rare within the construction industry and requires a thoughtful and knowledgeable contractor. Greenheart were meticulous in their approach to detailing throughout the project. This care was borne in both the quality of the finished and in the level or airtightness achieved at the end of the process.*

"The building has exceeded expectations in terms of comfort and energy use. Whilst we often use the wood burner for a few hours in the evening during winter, the house has needed no other heating."

LOOKING FOR A NEW VISION

By TOM REVELL

In 1898 Sir Ebenezer Howard published Garden Cities of To-morrow, a blueprint of a utopian green city, which from the smog of Victorian London must have seemed utterly fantastical.



Photos kindly supplied by Policy Exchange Ltd

"He proposed a city without the slums of the haphazardly urbanised industrial centres that defined the era."



Howard, an unlikely grandfather of a city planning movement, spent most of his life working as a record-keeper in parliament. But he also associated with the radicals and villains of London's backstreets – the anarchists, the socialists, and the Marxists.

His work in and around government gave Howard plenty of time to dwell on the myriad social problems of the day. The capital was overcrowded and crime-ridden. Immigrant populations were pushed into competition with the native working class, causing suspicion and xenophobia. Fear of social disintegration was widespread by the close of the century.

Influenced by his free thinking acquaintances, but ultimately rejecting their ideologies, Howard came up with an alternative.

With Garden Cities, Howard supposed that the most effective reform would be a reform of our homes. He proposed a city without the slums of the haphazardly urbanised industrial centres that defined the era. He described a city that preserved natural beauty, a city with fresh air and low rents.

Despite Howard's best efforts, his dream was never quite realised. Two cities were built according to his ideas – Letchworth Garden City and Welwyn Garden City. Both were considered a success, but they, like subsequent 'garden cities' never quite matched Howard's vision.

Over a century later, garden cities are back in vogue. The government has pledged to build three new garden cities by 2020, while the 2014 Wolfson Economics Prize is looking for a new vision.

The competition, which launched in November, asked entrants, *"How would you deliver a new garden city which is visionary, economically viable, and popular?"*

Speaking to Blue & Green Tomorrow after the launch, Lord Wolfson – chief executive of retailer Next, Conservative peer and the founder of the prize – explained, *"British people live in the smallest, most expensive housing in Europe, pretty much without exception.*

"There is an enormous pent up demand for good housing. At the moment house price inflation is increasing the gap between rich and poor and old and young. New cities offer a solution to that."

In June, the five finalists were announced. They are town planning and design consultancy Barton Willmore, the leading housing and homelessness charity Shelter, Wei Yang & Partners, David Rudlin of urban design and research practice URBED and Chris Blundell, who entered individually.

The shortlisted ideas include Barton Willmore's 10-point delivery plan, which would launch a new National Spatial Plan to identify suitable locations for new garden cities, and hire garden city mayors to front new commissions.

Wei Yang & Partners, in collaboration with Buro Happold Consulting Engineers, suggest an arc of garden cities beyond the London Green Belt, stretching from Portsmouth to Felixstowe.

Meanwhile, Shelter proposed a new city on the Hoo Peninsula on the north Kent coast, with a model designed to attract substantial private investment



"They are a real chance to improve quality of life for hundreds of thousands of people,"

into the provision of homes, jobs, services and infrastructure, along with unique opportunities given to local investors.

Each of the finalists has been given the opportunity to refine their ideas, and now the judges will choose a winner, to be announced this autumn.

"Collectively, the entries demonstrate that garden cities are not just an opportunity to crack Britain's housing crisis – they can also deliver better homes, gardens, infrastructure, schools, hospitals, public spaces, jobs and economic growth," Wolfson said.

"They are a real chance to improve quality of life for hundreds of thousands of people," he said.

There is, of course, no guarantee the winning idea will ever be built. The top prize is a cash sum of £250,000. It would take rather more to build a city.

But if the winning idea can demonstrate that a true 21st century garden city could deliver environmental, social and economic benefits of which Ebenezer Howard could only dream, while proving financial viable to construct, then like Garden Cities of To-morrow the Wolfson Economic Prize may inspire a new generation of city planning.

Asked if he believes the UK will realistically see new garden cities built in the not-to-distant future, Lord Wolfson said, *"I think if people come up with inspirational new ideas for urban living that are extremely attractive – and if they can prove that building it wouldn't cost the public any money, that it would be self funding – then I think there's every chance that we will."*

Photos kindly supplied by Policy Exchange Ltd



THE FUTURE OF HOUSE BUILDING

Housebuilding, as an art form and as a practical requirement, has blossomed over recent decades as the need for it increases, but the future of this rather unique industry is one of definitive progression, how do we as human beings expect to live in a world with rapidly decreasing space and resource?

By RICHARD HEASMAN

Photo by ALESSANDRO via Flickr

Arguably, predominant changes will occur with the private and rental sectors. How we design the available space, particularly cities, will see the greatest transformation and forward thinking ideals. But changes do not simply fall short there. Homeowners and designers will also be forced to adapt, as rising utility costs and more expensive materials mean choices in sustainable housing will have to be engaged in a new way.

To gain a greater insight into the shifting nature of the industry, Blue and Green Tomorrow talks to architect Luke Tozer, who we have written with previously.

"I think we will be seeing a lot more development in the way of purpose built rental accommodation" begins Luke, discussing what he believes to be future developments in the sector.

"With a particular emphasis on specialised services, that will be incorporated into new designs, making accommodation areas more inclusive, with gyms, shops, etc."

With this prospect, it makes the space more practical, especially within cities, *"this will be helped by better transport and public services."* The open market, Luke believes, will pursue this train of thought.

A rising issue, however, is the sustainability of materials as well as labour. "There is an imbalance of industries. Source isn't supporting demand. For example, bricks are in huge demand are becoming harder to acquire.

"As well as this, labour is also in short supply. The building industry is booming, and acquiring labour to build these more complex designs is becoming a greater issue. All of these things are connected, which affect the housing market in particular."

Certain considerations are now needed as the industry progresses, when building anything, especially in an urban environment where space is limited.

"I think both homeowners and builders should consider the impact of their build primarily, on future developments. The government has recently made private rental accommodation developments far more

"How builders and designers take into consideration waste and the source of their materials is also a credible subject."





Left Photo by UNPLUGGED via Flickr

Right Photo by JANET 59 via Flickr

flexible, which is great for the short term, but will create issues in the future.

"For example, when converting old office blocks in the city into apartments, there needs to be greater regulation that will guarantee these developments can be adapted for the future. So the outside of the building can remain the same, deliberately made to be robust, but the inside can adapt."

The government initiative known as Building Information Modelling (BIM), argues Tozer, is a very good move in achieving sustainability in the industry. The initiative allows the a centralised data base of building specs, from materials to 3D modelling, which can ultimately promote a consensus in city building.

Sustainability in developments is a big issue, agrees Tozer as it takes into consideration the future. *"Homeowners should consider sustainability as a primary factor in projects, as well as builders. Rising utility costs are making this subject even more important. Sourcing materials that properly insulate your home, that make developments last will go a long way towards bills, at least."*

But this doesn't stop just at simply living I the property. How builders and designers take into consideration waste and the source of their materials is also a credible subject.

"With technology, building supervisors have unlimited access to monitoring services that track the supply lines, etc. It's a far better auditing tool now than it has ever been."

With better planning, the minimisation of waste has made the housing industry as efficient as it ever has been, and will continue to grow in this way – as its need also expands.

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Having read through the Guide to Sustainable Homes 2014, you might be wondering how else you can make a difference in your life. We encourage you to read our other in-depth reports, from both this year and last, on topics as varied as investment, energy and the media. But above all, we encourage you to act upon what you've read.



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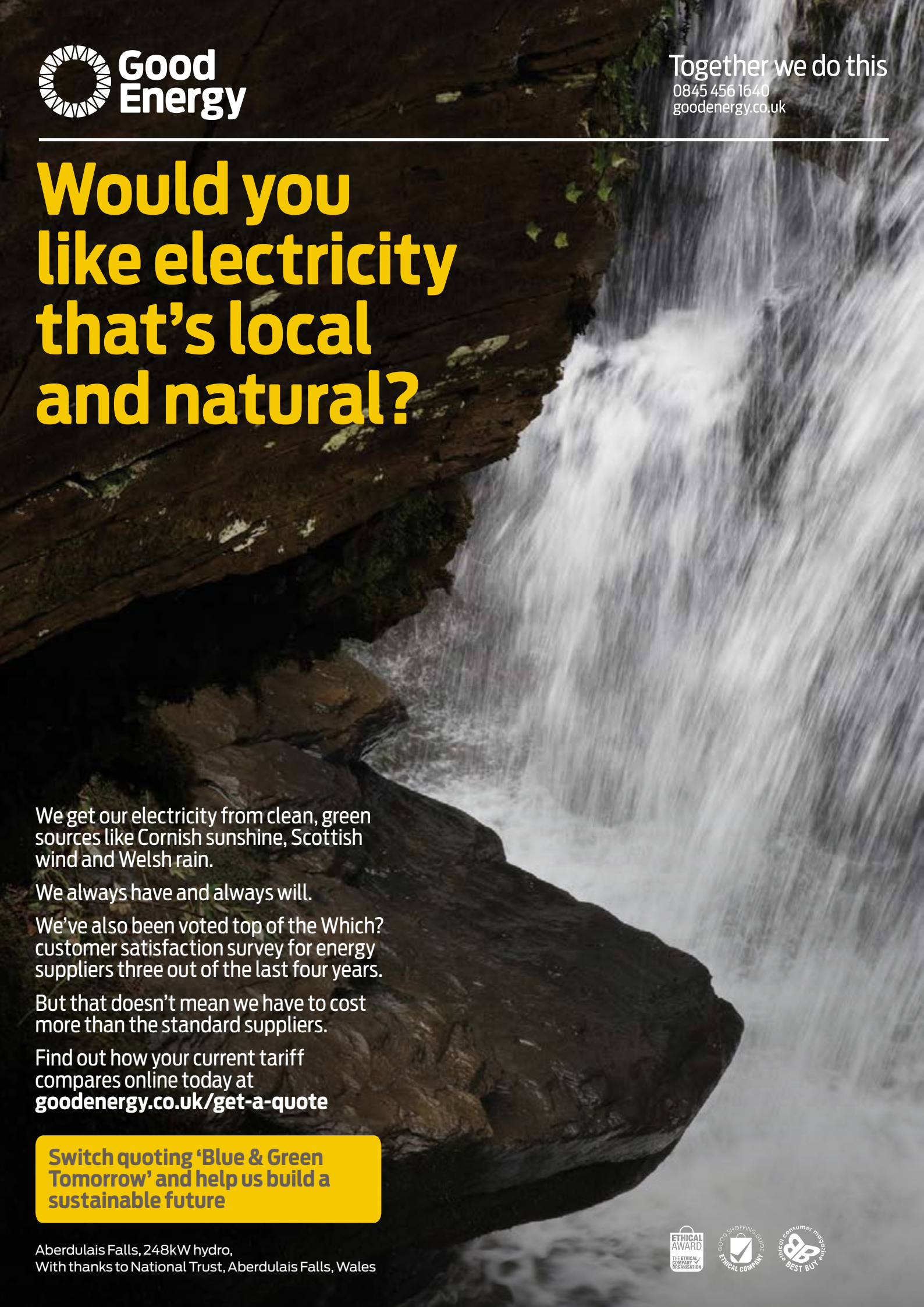
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