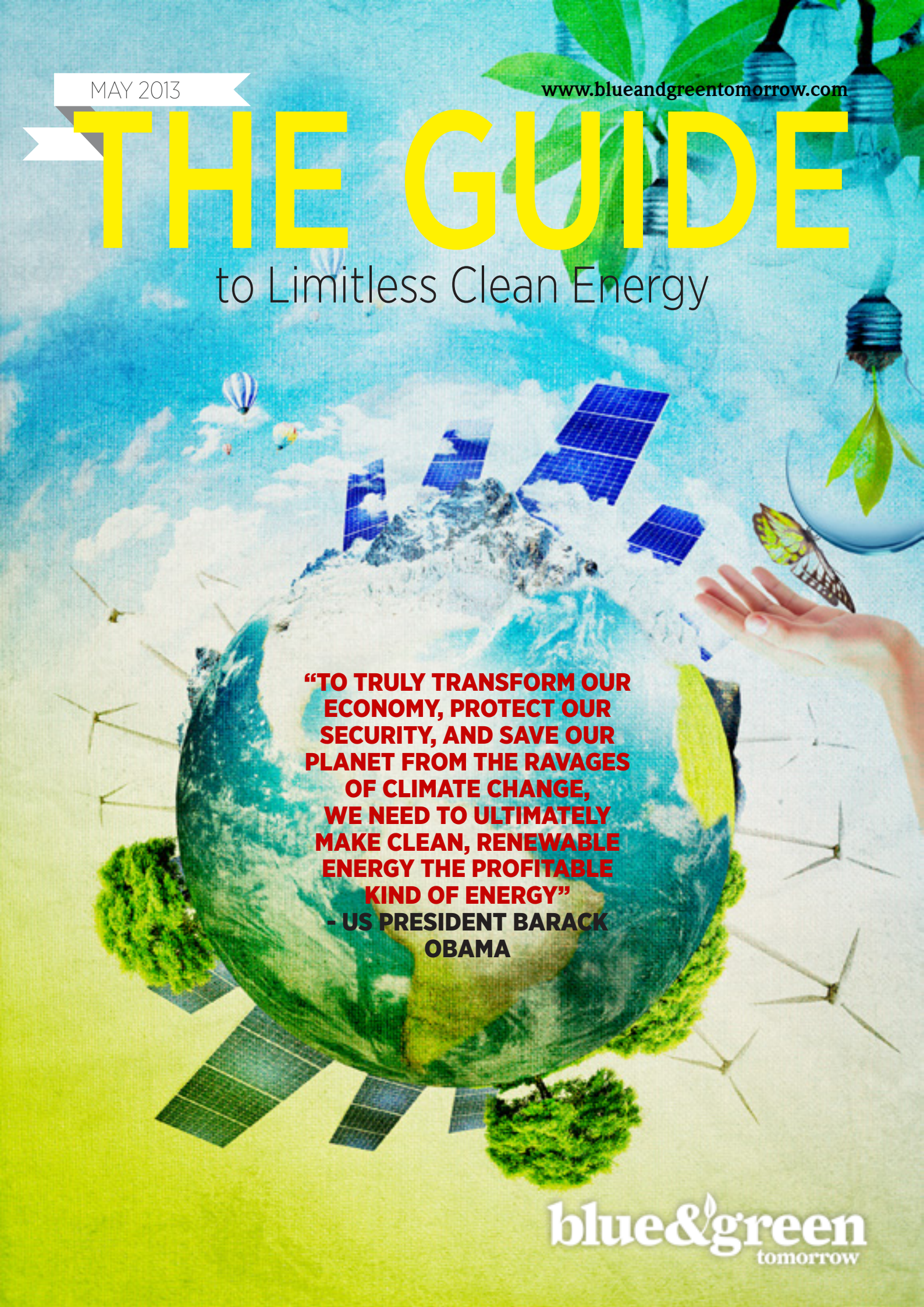


MAY 2013

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THE GUIDE

to Limitless Clean Energy



**“TO TRULY TRANSFORM OUR
ECONOMY, PROTECT OUR
SECURITY, AND SAVE OUR
PLANET FROM THE RAVAGES
OF CLIMATE CHANGE,
WE NEED TO ULTIMATELY
MAKE CLEAN, RENEWABLE
ENERGY THE PROFITABLE
KIND OF ENERGY”**

**- US PRESIDENT BARACK
OBAMA**

blue&green
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About BLUE & GREEN TOMORROW

➔ **Essential intelligence on sustainable investing and living**

Blue & Green Tomorrow wants to support innovative businesses that balance the needs of the planet, its people and our prosperity.

➔ We aim to provide our readers with the knowledge they need to make informed choices without prejudice, scaremongering or greenwash.

➔ **We want the world to be as blue and green tomorrow as it was yesterday.**

➔ We believe that everyone can play a part and anyone can make a difference. Not by going back through misplaced nostalgia to some bygone age, but by striding out to a bright new future in which we take advantage of the new approaches that can improve our quality of life, the food we eat, the air we breathe, the water we drink and the land we live on.



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LIFE

**IS FOR LIVING
WITHOUT
COSTING
THE EARTH.
THERE IS NO
PLAN (ET) B.**

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Swansea Bay Tidal Lagoon

FOREWORD

There's a quote by Thomas Edison, inventor of the lightbulb, the motion picture camera and many other things, about renewable energy. Speaking in 1931, he said, "We are like tenant farmers chopping down the fence around our house for fuel when we should be using nature's inexhaustible sources of energy — sun, wind and tide. I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that." While we have undoubtedly made great strides in developing cleaner sources of energy in the 82 years since Edison said this, it could be argued that as a global community, we're being a bit slow.

Fossil fuels still dominate the global energy mix, and though they haven't run out yet, our continued use is ramping up the possibility of runaway climate change (something that was, incidentally, not a major issue in Edison's era).

But there are alternatives.

This guide — the second Guide to Limitless Clean Energy — that we've done — is a sales pitch — but not in the traditional advertising sense. It's a sales pitch for better energy; for domestic energy; for safer energy; for more secure energy; for limitless clean energy.

Speaking to some of the most powerful advocates of renewables, including Juliet Davenport at Good Energy and former governor of Michigan Jennifer Granholm, we present the consumer, business and political case for developing and investing in clean energy.

At an individual level, the hunger for renewables is evident. A recent poll conducted by the Department of Energy and Climate Change found that 82% of people in the UK supported the use of clean energy. And other surveys make for similarly encouraging reading.

But government infighting and politicking has not helped. The lack of a decarbonisation target in the energy bill, for instance, is likely to have put some investors off the UK. Why invest in alternative energy technologies in a country that isn't committed to reducing the carbon footprint of its current infrastructure?

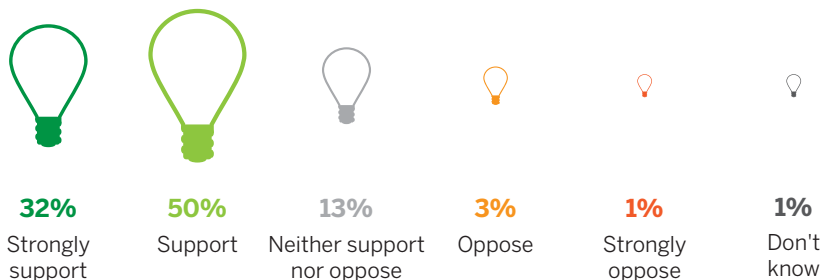
This needs to change.

But if consumers continue championing renewables, and businesses like Abundance Generation continue engaging with local communities on small-scale projects, change will happen. And if more entrepreneurs and investors look behind the lobbying to see the true long-term benefits of renewable energy, change will happen. Richard Branson, for instance, recently outlined his remarkable vision that all Virgin airlines will be 100% clean in the next year or two.

We need more of these outlooks — and sooner, rather than later.

As Gaynor Hartnell, outgoing chief executive at the Renewable Energy Association, tells Blue & Green Tomorrow on page 22, "Renewables will win out over all alternatives. It's just a question of when."

Do you support or oppose the use of renewable energy for providing our electricity, fuel and heat?



Source: Department of Energy and Climate Change
bit.ly/public-attitudes

Alex Blackburne

EDITOR, BLUE & GREEN TOMORROW



Thursday, 13th June 2013

The Renewable Energy Association will host the 8th British Renewable Energy Awards on Thursday, 13th June 2013 at the Jumeirah Carlton Tower Hotel, London SW1.

40 leading companies and individuals from across the UK renewables industry and the wider economy are in the running for a 2013 REA Award.

From biofuels to banks, heat pumps to housing trusts and PV to pension funds, join us once again to celebrate the best in British renewables.

The Awards, organised by REA, offer a unique opportunity to meet the people behind these inspiring projects, as well as leaders from business, politics and the media.

**After Dinner Speaker:
The Right Honourable Michael Portillo**



Since leaving politics, Rt. Hon. Michael Portillo has devoted himself to writing & broadcasting. He's a regular on both BBC 1's sardonic political "This Week" programme and Radio 4's "The Moral Maze". He has made radio and television documentaries on a wide range of subjects, including five series of "Great British (and more recently Continental) Railway Journeys" for BBC 2.

The REA Gala Awards Dinner is a superb evening and an established highlight in the British renewables calendar. It's a great way to entertain clients or colleagues and offers a very unique networking opportunity with many industry VIP guests.

Book your place now via: www.r-e-a.net

Award Sponsors:



RENEWABLE ENERGY IN THE NEWS

INVESTORS GIVEN PARTIAL CERTAINTY AS GOVERNMENT PUBLISHES ENERGY BILL

November 29, 2012

The government has gone some way to provide investment confidence and certainty in the UK energy market, after publishing its long-awaited energy bill this morning.

Energy secretary Ed Davey outlined the make-up of the bill in the House of Commons, saying that it shows the government is “making good progress towards our vision of a thriving low-carbon economy with secure energy supplies, and sets out an energy policy that is good for growth and good for consumers”.

Full story: <http://bit.ly/X43pOM>

REPORT FINDS INSTITUTIONAL INVESTORS CAN CONTRIBUTE SIGNIFICANTLY TO RENEWABLES

March 9, 2013

Government policies and investment practices are limiting the potential of renewable energy, a study has revealed.

The report by the Climate Policy Initiative (CPI), entitled The Challenge of Institutional Investment in Renewable Energy, has that institutional investors, including pension funds, hedge funds, investment advisors and insurance companies, are limited to the amount they can invest into renewable energy projects.

Full story: <http://bit.ly/Y0a6NY>





BILL GATES JOINS INVESTORS IN RENEWABLE ENERGY STORAGE FIRM

April 4, 2013

Microsoft co-founder Bill Gates has joined a group of investors in renewable energy storage research and development, after pledging towards a \$35m investment in cleantech firm Aquion Energy. Aquion is developing a water-based battery system that uses saltwater to conduct electricity and stores wind and solar energy when this is not immediately available.

Full story: <http://bit.ly/10d9Uhp>

PLANTS INSPIRE SCIENTISTS TO USE HYDROGEN FOR ENERGY

April 18, 2013

Inspired by plants, Scottish scientists have harnessed the principles of photosynthesis to generate clean energy from hydrogen. The breakthrough, they say, offers a potential solution to the global energy crisis.

Published in the journal Nature Chemistry, the scientists, from the University of Glasgow, said that the innovation could generate green energy "on an industrial scale" from water, which could "significantly reduce the country's carbon footprint".

Full story: <http://bit.ly/10kcK8d>

NATIONAL TRUST PLANS AMBITIOUS RENEWABLE ENERGY ROLLOUT

April 18, 2013

Conservation group the National Trust has unveiled a £3.5m deal, in conjunction with renewable electricity supplier Good Energy, which will see it make its first steps in producing half of its power from clean sources.

Forty-three National Trust sites will benefit from the investment, which includes the installation of hydro, biomass and heat pump technology.

Full story: <http://bit.ly/XH22YV>

EU MEMBER STATES SEE BOOST IN RENEWABLES USE

April 29, 2013

The 27 EU member states increased their consumption of renewable energy by 13% in 2011, according to the recent figures by Eurostat.

The EU's statistical office states that over the past two years, most European countries have increased their production of energy from renewable sources.

Full story: <http://bit.ly/17s00K7>

INCREASE IN SUPPORT FOR RENEWABLE ENERGY IN GOVERNMENT POLL

April 30, 2013

Public support for renewable energy in the UK has risen to 82% from 79% in the latest Public Attitudes Tracking Survey conducted by the Department of Energy and Climate Change (DECC).

Eighty-five per cent of respondents gave their backing to solar, while 77% said they were behind wave and tidal developments.

Full story: <http://bit.ly/12X97TL>

STUTTERING INVESTMENT IS PUTTING EU RENEWABLES TARGETS AT RISK

May 13, 2013

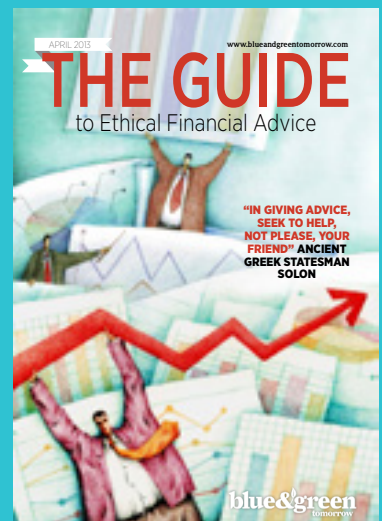
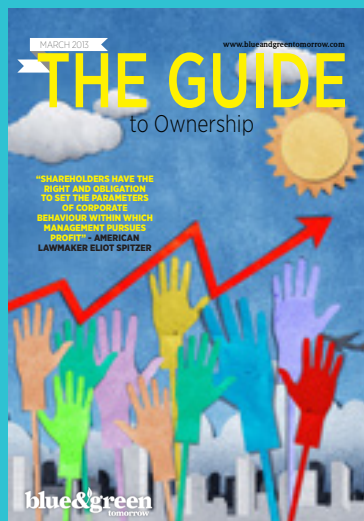
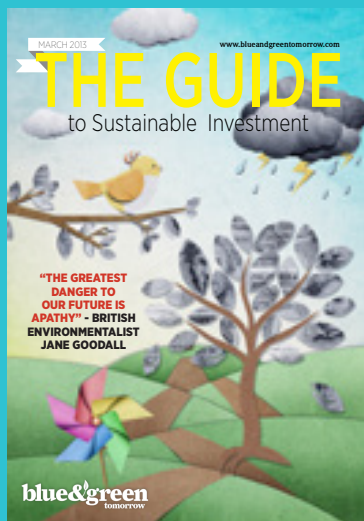
Sluggish investment into renewable energy is likely to prevent the EU from meeting its 2020 renewable energy targets, according to financial services firm Rabobank's quarterly report.

Justin Sherrard, Rabobank analyst, said, "A failure to meet the 2020 targets is a result of a number of barriers to renewable energy investment and development, which include the cost of capital, delayed infrastructure investments and disruptive policy adjustments."

Full story: <http://bit.ly/12tkDEw>

2013

reports



The Guide to Limitless Clean Energy is Blue & Green Tomorrow's eighth report of 2013. Click on the respective covers to read the previous seven.

THE CLEAN ENERGY FENCE: ON WHICH SIDE DO YOU SIT?



RENEWABLE ENERGY IS ONE OF THE MORE POLARISING AND POLITICISED ISSUES OF THE 21ST CENTURY. OPPONENTS OFTEN HAVE POWERFUL PLATFORMS TO VOICE THEIR OPPOSITION TO LOCAL PROJECTS, BUT RARELY OFFER ANY REALISTIC ALTERNATIVES TO THE TECHNOLOGY THEY REJECT. HERE, WE RUN THROUGH SOME OF THE MAIN ARGUMENTS FROM THOSE AGAINST AND THOSE IN FAVOUR OF CLEAN ENERGY.

LET US KNOW WHAT YOU THINK ON ANY OF THE FOLLOWING CHANNELS.

TWITTER: @BLUEGREENTWEET
FACEBOOK: WWW.FACEBOOK.COM/
BLUEANDGREENTOMORROW
EMAIL: EDITOR@BLUEANDGREENTOMORROW.COM

CLIMATE CHANGE

AGAINST: WHAT CLIMATE CHANGE? SOME OF THE MOST ARDENT OPPOSITION TO RENEWABLE ENERGY COMES FROM INDIVIDUALS, ORGANISATIONS AND COMPANIES THAT EITHER DENY OR ARE SCEPTICAL ABOUT HUMAN-CAUSED GLOBAL WARMING. WHY SPEND ALL THIS MONEY ON UNPROVEN TECHNOLOGIES WHEN WHAT WE'VE GOT CURRENTLY IS MORE THAN SUFFICIENT?

FOR: THE PRIMARY MOTIVATION FOR INVESTING IN AND DEVELOPING CLEAN ENERGY PROJECTS IS TO MITIGATE AGAINST THE EFFECTS OF CLIMATE CHANGE. UNLESS WE DRAMATICALLY CUT OUR GREENHOUSE GAS EMISSIONS, PRODUCED BY BURNING FOSSIL FUELS, WE WILL BE FACED WITH MORE EXTREME WEATHER, SUCH AS FLOODS, DROUGHTS AND WILDFIRES. DEFORESTATION, OCEAN ACIDIFICATION AND BIODIVERSITY LOSS ARE OTHER UNWANTED CONSEQUENCES.

POLLUTION

AGAINST: THERE IS NO ANSWER TO THIS.

FOR: EVEN MORE BASIC THAN THE ARGUMENTS ABOUT CLIMATE CHANGE IS AN URGENT NEED TO REDUCE OUR POLLUTION, WHICH IS PROVING RUINOUS TO OUR HEALTH AND THE ENVIRONMENT. AIR POLLUTION COMES WITH A MASSIVE HEALTH BILL.

ENERGY SECURITY

AGAINST: IT IS MUCH MORE SENSIBLE TO DEVELOP OTHER FORMS OF ALTERNATIVE ENERGY, SUCH AS NUCLEAR POWER AND FRACKING FOR SHALE GAS, WHICH ARE PROVEN TO BE ABLE TO SUPPLY ENERGY IN THE SHORT-TERM.

FOR: AS ITS NAME SUGGESTS, RENEWABLE ENERGY IS RENEWABLE. PUTTING THE CLIMATE CHANGE ARGUMENT ASIDE FOR A MOMENT, DEVELOPING ENERGY TECHNOLOGIES THAT DO NOT USE UP FINITE RESOURCES, RATHER THAN THOSE WITH THAT WILL RUN OUT, SEEMS THE WISEST AND MOST SUSTAINABLE OPTION.

DOMESTIC ENERGY

AGAINST: WE HAVE A VALUABLE UNTAPPED DOMESTIC RESOURCE IN SHALE GAS. WE SHOULD EXPLOIT THAT FULLY BEFORE INVESTING IN SPECULATIVE TECHNOLOGIES. RENEWABLE ENERGY CANNOT MEET THE COUNTRY'S GROWING ENERGY NEEDS. SOME RENEWABLE TECHNOLOGIES WILL TAKE DECADES TO REACH THE LEVEL OF GENERATION REQUIRED OR COMMERCIALISATION STAGE.

FOR: INVESTING IN DOMESTIC RENEWABLE ENERGY REDUCES A COUNTRY'S DEPENDENCE ON FINITE FOSSIL FUELS FROM UNSTABLE REGIMES, WHERE ECONOMIC AND POLITICAL UNCERTAINTIES CAN BRING SUPPLY INTO QUESTION. GOING FROM ENERGY IMPORTER TO ENERGY EXPORTER WILL BENEFIT OUR BALANCE OF TRADE.

EFFICIENCY

AGAINST: RENEWABLE ENERGY IS TOO DEPENDENT ON UNPREDICTABLE WEATHER. IT'S NOT ALWAYS WINDY AND THE SUN DOESN'T ALWAYS SHINE. ONLY FOSSIL FUELS AND NUCLEAR POWER CAN PROVIDE THE BASE-LOAD OF ENERGY OUR ECONOMY NEEDS.

FOR: THE IMPORTANCE OF A RENEWABLES MIX CANNOT BE UNDERPLAYED. THERE WILL INEVITABLY BE DAYS WHEN THE WIND ISN'T BLOWING OR THE SUN ISN'T SHINING (THOUGH SOLAR PANELS STILL WORK WHEN IT'S CLOUDY), BUT IT'S HIGHLY UNLIKELY THAT IT WILL BE CALM AND CLOUDY EVERYWHERE. HAVING A CLEAN ENERGY ARSENAL COMPRISING OF OTHER FORMS OF RENEWABLES SUCH AS BIOMASS, HYDRO TECHNOLOGIES AND OTHERS, IS THEREFORE CRUCIAL. AS THE TECHNOLOGY MATURES AND STORAGE INNOVATIONS COMES ON STREAM EFFICIENCY WILL RISE.

SAFETY

AGAINST: ONCE WE INVEST IN BETTER SAFETY MEASURES FOR FOSSIL FUELS IN ADDITION TO CARBON CAPTURE AND STORAGE, ANY DANGER OF ENVIRONMENTAL DISASTERS WILL BE QUELLED. THESE INCIDENTS WERE JUST MINOR BLIPS; THE MAJORITY OF EXTRACTION IS SAFE.

FOR: CLEAN ENERGY IS DEMONSTRABLY SAFER THAN CONVENTIONAL ENERGY SOURCES. BP'S DEEPWATER HORIZON DISASTER IN 2010 AND THE DANGERS OF AN OIL SPILL IN THE ARCTIC ARE JUST TWO EXAMPLES OF HOW FOSSIL FUELS POSE

A SEVERE THREAT TO ECOSYSTEMS AND HEALTH WORLDWIDE. FUKUSHIMA, CHERNOBYL AND THREE MILE ISLAND ARE CLEAR ENOUGH WARNINGS OF THE DANGERS OF NUCLEAR POWER. CIVILIAN NUCLEAR PROLIFERATION HERALDS A LESS SAFE WORLD WITH MORE NUCLEAR NATIONS.

EMPLOYMENT

AGAINST: THE FOSSIL FUEL INDUSTRY HAS JOBS FOR PEOPLE TODAY – RATHER THAN UNCERTAINTY IN THE FUTURE. INVESTMENT IN CARBON CAPTURE AND STORAGE, FRACKING AND NUCLEAR WILL ALL CREATE NEW JOBS.

FOR: CLEAN ENERGY CREATES JOBS. AND LONG-TERM JOBS AT THAT. THE RENEWABLE ENERGY ASSOCIATION ESTIMATED THAT THE 110,000 EMPLOYED IN RENEWABLES IN 2012 COULD RISE TO 400,000 BY 2020. THE MORE MATURE FOSSIL FUEL INDUSTRY HAS A FALLING NUMBER OF PEOPLE WORKING IN IT.

COST

AGAINST: OUR ECONOMY SIMPLY ISN'T WEALTHY ENOUGH TO INVEST MONEY ON EXPENSIVE RENEWABLE TECHNOLOGY THAT IS UNPROVEN. GREEN ENERGY IS DRIVING UP CONSUMER ENERGY BILLS, WHEN WHAT WE REALLY NEED, IS ASSURANCE THAT OUR LIGHTS ARE GOING TO STAY ON.

FOR: THE SHORT-TERM COST OF RENEWABLE ENERGY MAY BE GREATER THAN FOSSIL FUELS IN SOME CASES, BUT OVER THE LONG-TERM, THE BALANCE IS SHIFTING. AS RENEWABLE TECHNOLOGIES MATURE, THEY WILL BECOME CHEAPER AND MORE STABLE. MEANWHILE, AS FOSSIL FUELS BECOME INCREASINGLY DIFFICULT TO FIND AND EXTRACT, THEIR PRICE WILL RISE AND BECOME MORE VOLATILE.

SUBSIDIES

AGAINST: WE SHOULD NOT BE SUBSIDISING UNPROVEN, INEFFICIENT TECHNOLOGIES TO THE SCALE THAT WE ARE CURRENTLY. LET'S GIVE OUR MONEY INSTEAD TO ENERGY SOURCES THAT ARE ALREADY MATURED AND CAN PROVIDE SUFFICIENT POWER TO OUR HOMES AND BUSINESSES NOW.

FOR: SUBSIDY IS JUST ANOTHER WORD FOR A GOVERNMENT AID FOR A PUBLIC GOOD. SOLAR PV'S SUBSIDY HAS BEEN DRAMATICALLY CUT IN THE LAST 18 MONTHS OR SO, BUT THE COST OF THE TECHNOLOGY HAS FALLEN SIMULTANEOUSLY. TO PUT THE WHOLE ENERGY MARKET IN CONTEXT, THE ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT SAYS EVERY HOUSEHOLD IN THE UK ALREADY SUBSIDISES FOSSIL FUELS BY £138 AND RENEWABLES BY ONLY £53. IN OTHER WORDS, FOR EVERY POUND OF RENEWABLE SUBSIDY, FOSSIL FUELS RECEIVE £2.60. IN THE NOT-TOO-DISTANT FUTURE, RENEWABLE ENERGY'S SUBSIDY WILL SEEM SMALL IN COMPARISON TO THE GUARANTEE OF A LIMITLESS, CLEAN AND DOMESTIC ENERGY SUPPLY.

COMMUNITIES

AGAINST: RENEWABLE ENERGY SHOULD NEVER BE FORCED UPON A COMMUNITY – EVEN IF THERE ARE FINANCIAL BENEFITS INVOLVED. A WIND FARM IN A VILLAGE LIES IDLE MUCH OF THE TIME AND RUINS THE COUNTRYSIDE.

FOR: ENGAGING WITH A LOCAL COMMUNITY IS KEY TO A SUCCESSFUL RENEWABLE ENERGY PROJECT. MANY DEVELOPMENTS ALLOW PEOPLE TO INVEST IN THEM [SEE PAGE 42] MEANING LOCALS CAN BENEFIT NOT ONLY FROM HAVING CLEAN ENERGY PIPED DIRECTLY INTO THEIR HOMES; BUT FROM SEEING A FINANCIAL RETURN OVER THE YEARS.

AESTHETICS

AGAINST: RENEWABLE ENERGY – AND IN PARTICULAR WIND, BUT SOLAR TOO – IS SEEN BY SOME AS AN EYE-SORE; A DREADFUL BLOT ON THE LANDSCAPE.

FOR: MANY SUPPORTERS OF RENEWABLE ENERGY HAVE NO OBJECTION TO THE ELEGANT WHITE PYLONS AND SLOWLY ROTATING BLADES OF A WIND TURBINE PRODUCING CLEAN ENERGY, OR A FIELD COVERED IN SOLAR PANELS CATCHING THE SUN'S RAYS AND TURNING THEM INTO CHEAP ELECTRICITY. KNOWING THAT A STRUCTURE IS THE THING THAT'S KEEPING YOUR LIGHTS ON, WHILE NOT HARMING THE ENVIRONMENT FOR YOUR CHILDREN, CAN BE VERY FULFILLING.

RENEWABLES FOR THE MASSES

REGULAR READERS OF BLUE & GREEN TOMORROW WILL ALREADY BE VERY FAMILIAR WITH 100% RENEWABLE ELECTRICITY COMPANY, GOOD ENERGY. IN THE PAST 12 MONTHS, THE FIRM HAS GONE FROM STRENGTH TO STRENGTH, AND ITS CEO JULIET DAVENPORT BRINGS US UP TO SPEED WITH GOINGS-ON.



Since we last spoke to you for The Guide to Limitless Clean Energy 2012, what has happened at Good Energy?

Last year, we grew our customer base – including our small generators and electricity and gas customers – by around 80%.

And that was driven by a significant number of people getting involved in generating power, from individuals through to social housing organisations. As their FiT administrator, we look after them, checking their meters and ensuring that they get paid for producing renewable

electricity.

The really interesting part for us is seeing the social housing organisations investing in solar in their properties, to give themselves a return but also help support their tenants in terms of reducing bills. Good Energy's flexible service helped underpin this investment, and we hope to be able to support those organisations going forward.

What do you think your very encouraging annual report said about renewable energy in the UK?

I think it's very buoyant at the moment. There have been some knock-backs, and we've seen a change in policy on FiT. But actually, we're seeing a lot of positivity about the technology and the price of it improving.

There is a growing general awareness that we need to start to make changes on how we use and generate energy, to improve the outlook from a security and climate change point-of-view.

Our organisation is trying to put the customer at the heart of it all rather than trying to be technology led, because any investment the market makes is essentially there to ensure that households and businesses can buy affordable, secure, low carbon energy for the future. Engaging with individuals and businesses on how to solve this problem is a very powerful way forward.

Are renewables in a better position now than this time last year?

The UK has a larger percentage of renewables in our mix now than ever. One day in March this year around 11% of the UK's demand was being met by wind. At the same time, one of the gas pipelines from Belgium had failed, pushing the price of gas up in the day ahead market and influencing the forward energy price to almost three times the normal value.

For me, this demonstrates precisely why we need a good mix across all different technologies; no technology is secure, as history demonstrates time and time again.

You previously said that one of the key things the government needs to understand is "how the market structure that it's implementing is affecting the smaller players – the non-traditional energy suppliers". Does it have a better understanding of this now?

I think the government is still struggling. When we look at the mechanisms that we're likely to see coming into play over the next couple of years, particularly in the electricity market reform, I think it's such a massive challenge – even for the bigger players. For the smaller players increased complexity just means increasing the pressures of covering costs across a smaller customer base. There is some work going on for the smaller players, both suppliers and generators, but it's still on the margins rather than at the centre.

Our point is that these are potentially the technologies of the future so you've got to make sure the market is structured accordingly, and future proofed. Have we moved on? I'm not entirely sure. I'm not confident that we've moved on and recent meetings with officials have reinforced that opinion.

The energy bill was published in December. Did the government go far enough for renewables?

We would have liked to have seen a decarbonisation target, because at the moment, there are few signals from governments about the vision for the future beyond 2020 and as such we will begin to see investments slow down until there is. I know governments have shorter time horizons, but investments take time. We think on five to 10-year horizons. To make that type of planning – not just



“ THERE IS A GROWING GENERAL AWARENESS THAT WE NEED TO START TO MAKE CHANGES ON HOW WE USE AND GENERATE ENERGY, TO IMPROVE THE OUTLOOK FROM A SECURITY AND CLIMATE CHANGE POINT-OF-VIEW

for the energy industry – but also for the wider industry, it must understand that a commitment is important going forward.

The lack of a decarbonisation target has been picked up by many industry bodies as one of the defining issues to come out of the energy bill. Has it affected consumer confidence?

We all know this is about the longer term. For the short-term, no, I don't think it has. It's something we need to get back on the agenda and make sure the short-term political football, which is what it seems to have become, is about the long-term. From our point-of-view, the decarbonisation target is something we think we should be working towards. It would have been good to get it in this energy bill, because it makes sense to do that.

It's still all up for grabs, and obviously we can still go after it. But in terms of consumers, my answer is no.

What is the primary driver for someone who switches to Good Energy? Is their motivation environmental, financial or a mixture of both?

I think it's a mixture of both. And there's

another thing up there, we've come top of the Which? customer satisfaction survey 3 times out of the last 4 years. I think providing good customer service is part of our credibility and ensuring that our staff are trained to be able to answer a range of questions on energy efficiency and renewables is incredibly important. We also have had stable prices for the last four years. Customers seem to really appreciate that and it's something we will be working on for the future. There are probably five or six boxes that different people will tick. But being green is the core part of it.

You recently launched a local tariff for customers who live near Delabole wind farm. What were the drivers for launching this?

We bought the site as the oldest commercial wind farm in the UK, and we repowered it in 2010, installing 4 turbines that generate enough electricity to power around 5,500 homes. This means that the site produces nearly two and half times more than it did before. In the planning process we held three consultations on that project and met with the local community. At the events we talked them through the project,



“RENEWABLE ENERGY IS VERY BUOYANT AT THE MOMENT

and a key feedback was that we got was people asking, “Can we buy electricity from the site? Can you deliver us cheap electricity?”

We didn’t make the commitment at the time, but we agreed to investigate to see whether we could. We launched the Delabole tariff as a result.

Are there plans to roll similar plans out elsewhere in the UK?

What we’re looking at now is whether we can roll it out to other sites that we’re developing. We figured out that for a wind site, it needs to be above 4 megawatts (MW) for us to offer a local tariff. We’re looking at potentially launching a local tariff at a site we’re developing at the moment, and for another two sites in the pipeline.

Good Energy recently launched a partnership with the National Trust. How did that come about?

We were chosen by the National Trust to be its principal energy partner at the end of 2012. I think they were particularly impressed by our green credentials and

reputation for outstanding customer service.

We will partner the National Trust for the next three years and help develop its renewable strategy. Together we hope to inspire people to switch to green electricity, reduce their energy usage and if possible generate their own renewable power at home.

Members and supporters can get involved too. For each household that signs up to our dual fuel tariff via the National Trust, we will pay £40 to the Trust, providing it with an income to invest in energy infrastructure and reduce CO2 emissions at the same time.

One of the things that has been widely mentioned in reports about the deal is the lack of wind power. What were the reasons for not including wind?

The National Trust went to all its properties to see how it could save CO2 emissions with the resources it has at each site. A lot are buildings or on woodland estates, and most are being heated by oil. These sites are looking to use biomass. They have also identified some hydro power potential, because many sites have old mills or are next to rivers.

The National Trust has chosen renewables appropriate to the resources of the special places it looks after.

One of the things it’s working on is a tool to look at the value of landscapes. For us,

it’s helpful because we can potentially use that in terms of sites we’re looking at for developing wind.

What would you say to Blue & Green Tomorrow readers who might have read about Good Energy, but are yet to make the switch?

It’s always about time. People are always very time poor. People are concerned when they change their utility provider about how much time it’s going to take and whether it’s going to be more expensive.

I think the best thing for anybody to do is to give us a call. Our customer services guys are all trained in energy efficiency, and we’re now accredited by the Energy Savings Trust. You can just ring up for a chat and find out about what you can do. In terms of switching to Good Energy, it’s very easy and takes less than five minutes. You can do it quickly via our website or over the phone if you prefer to talk to our fantastic customer services team.

Finally, one of the things we tend to see is that Good Energy customers generally use less electricity than the national average because they’re thinking about it. We’re a great place to come to, even if you don’t switch immediately. It’s about starting that conversation; how you can use less energy, whether you can generate your own energy and whether you want to switch.

www.goodenergy.co.uk

“If only all companies had such great and prompt customer service”

Mark, Good Energy electricity customer
February 2013

It's comments like Mark's that helped us top the Which? customer satisfaction survey for the second year running.

But our excellent customer care isn't the only thing that makes us special.

We source our electricity from certified renewables like sunshine, wind and rain. It's produced locally too, by a growing community of independent generators across Britain.

And we usually cost less than the Big Six's standard tariffs.

**Switch quoting 'Blue and Green' for
£25 off your first bill**

Image: Andrew, Customer Care Advisor
Energy Saving Trust advice score: 86%



MIND THE ENERGY GAP

BY SIMON LEADBETTER

THREE-DAY WEEKS AND BROWNOUTS MAY SEEM LIKE A DISTANT AND UNPLEASANT MEMORY. WE FACE A SIMILAR CRISIS IN THE COMING DECADE UNLESS OUR GOVERNMENT ACTS SOON TO SECURE OUR ENERGY SUPPLY. BROWNOUTS WILL DAMAGE OUR FRAGILE ECONOMIC RECOVER THROUGH BUSINESS CLOSURES, FALLING CONFIDENCE AND RISING ENERGY PRICES FROM IMPORTS. THIS IS THE ENERGY GAP.

In the 1970s, rampant inflation and capped pay rises triggered a bitter power struggle between the National Union of Mineworkers and the Edward Heath government. The mineworkers' union worked to rule depriving power plants of coal, leading the government to declare a three-day week to conserve energy. An oil crisis with OPEC in 1973 didn't help. Fast forward 40 years, inflation and union power may have been curbed, but the failure of successive governments to address our ageing energy generation plants has put us in the same invidious position. This time they don't have unions or foreigners to scapegoat. The UK was a net energy importer until 1980, and then North Sea oil and gas started to flow, making us a net exporter until 2004. Since then, we have been a rapidly rising importer, taking 8% of our energy in 2005, the year the balance switched. Net import dependency in 2012 had increased to 43%, its highest level since 1976.

In 2005, a panel of 150 energy experts, under the auspices of the UK Energy Research Centre and Geological Society of London, reported that by 2020, the UK may only be producing 80% of the energy it needs. That's an unprecedented shortfall, which heralds brownouts and a four-day week.

Ofgem's 'Project Discovery' report in 2009 identified the problems that Britain faced. It stated that the combination of a global financial crisis, tough environmental targets and the closure of ageing power stations would increase the risk to consumers' energy supplies and could lead to higher bills.

In 2010, parliament published a briefing paper describing the 'looming' energy gap. It said, "There will also be a substantial loss of generating capacity during the next decade as coal-fired capacity closes around 2015, following the emissions standards set by the Large Combustion Plant Directive, and most nuclear power stations reach the end of their productive lives."

In October 2012, Ofgem warned that there may have to be "controlled disconnections", or brownouts, of homes and businesses in the middle of the decade because Britain has so far not done enough to make sure it has sufficient electricity.

Ofgem's outgoing CEO Alistair Buchanan, writing in the Daily Telegraph in February, said, "If you can imagine a ride on a rollercoaster at a fairground, then this winter we are at the top of the circuit and we head downhill – fast. Within three years we will see reserve margin of generation fall from below 14% to below 5%. That is uncomfortably tight."

A reserve margin of 5% is too slim a reserve if we have a particularly cold spell and energy consumption rises beyond.

In March 2013, the UK lost 10% of its generation capacity as coal and oil-fired power stations went offline.

Despite the clear warnings and apparent recognition of the energy gap we face,



the government has still not secured generation capacity to meet our future needs. Dithering over nuclear and divided over renewables, the solution appears to be to import scarce fossil fuels with volatile prices from unstable and unsavoury regimes.

But the world has not stood still.

The economic growth of China, India and other emerging economies means the demand for fuel supplies has risen. Our success in promoting free trade and economic growth means we now have more competitors for increasingly scarce resources. Energy exporters have a greater choice of customers they can serve. Russia's gas can flow west into an interfering Europe or east into a grateful Asia.

Two reports that have largely been ignored by government demonstrate that the UK could become a net exporter of energy if it produced and implemented a coherent energy strategy, with a pivotal role of renewables.

The National Grid's 'Future Energy Scenario' report 2012 indicated that the UK could become a net exporter of energy by the 2020s, by delivering on the commitment to have 15% of energy

“DITHERING OVER NUCLEAR AND DIVIDED OVER RENEWABLES, THE GOVERNMENT'S SOLUTION APPEARS TO BE TO IMPORT SCARCE FOSSIL FUELS WITH VOLATILE PRICES FROM UNSTABLE AND UNSAVOURY REGIMES

generated by renewables.

Meanwhile, the 'Offshore Valuation' demonstrated that using just a third of our offshore energy potential could make us a net energy exporter.

And this isn't the pipe dream of treehugger, although we probably count on their support.

In March, Good Energy CEO Juliet Davenport [see page 12] wrote, "Last week[March 22] the combination of a cold snap, dwindling gas supplies and a

pipeline failure meant gas prices spiked within hours on Friday. As the events unfolded they provided a dramatic example of how our over reliance on importing expensive fossil fuels like gas, leaves us exposed to volatile prices.

"At the same time, on Friday morning high wind speeds led to 11.6% of demand being met by wind. According to RenewableUK, Saturday was another record breaking day for UK wind, and over the weekend clean British energy was generating enough to power the equivalent of nearly four out of every 10 UK homes and consistently over 10% of GB's overall electricity needs.

"The wind dial on Gridwatch, which displays near real-time data on what the UK's electricity grid is doing, consistently showed over 5 gigawatts (GW).

"We have been given a glimpse of the future if we fail to make the most of the abundant resources we have here in the UK. On Monday last week, Denmark produced enough energy from wind power to satisfy the whole country's electricity demand.

"Wind is not a silver bullet, but it must be an important part of the energy mix in the years to come if we are to meet

the challenge of greater energy security, cheaper costs and cutting carbon emissions. For those who would ignore the potential of renewables, Friday provided a fantastic example of what we would be missing."

A government's first duty is the defence of the realm and its people from enemies, both foreign and domestic.

There could be no greater twin threats to our national security than climate change and the energy gap. The first is existential; the second economic.

The energy gap makes us dependent on increasing imports of scarce fossil fuels with volatile prices from unstable and unsavoury regimes. Burning those fossil fuels makes us a primary cause of climate change and leaves us open to its many and unpredictable threats. More extreme weather events are the most obvious threats, destroying agriculture, flooding homes and businesses and harming communities.

The domestic enemies are those in the media who claim that burning more

THERE DOESN'T NEED TO BE AN ENERGY GAP IF POLITICIANS WITH VISION AND COURAGE SUPPORT THE RENEWABLE SECTOR WITH CONVICTION

fossil fuels is just fine and that human-caused climate change is a myth.

The UK could secure a domestic, clean and limitless supply of energy by tapping into the wind, wave and tidal resource that we have in abundance.

Solar and nuclear both play a role. Solar due to their easy small scale installation and rapidly falling costs. Nuclear may be a necessary evil if we can bear the risks of waste storage and proliferation. Energy efficiency, including residential, commercial and transport initiatives, all play their part in reducing demand as we clean up the supply.

It would support thousands of new jobs domestically, from engineers to construction workers to insulation fitters. It would also help create a valuable new

export industry in a global renewable market worth \$1 trillion.

Davenport makes the point, "Instead of relying on rescue from a tanker from far flung places like Qatar or gambling on the hope that we'll find new unconventional sources of gas, we could become self-sufficient in clean energy. It not only makes economic sense but environmental sense too."

There doesn't need to be an energy gap if politicians with vision and courage support the renewable sector with conviction. There doesn't need to be an energy gap if the electorate commit to punishing those who do not address the challenge we face.

The year of brownouts, 2015, is the year of the next general election.

The mix of UK energy sources **today**



The mix of UK energy sources **in 2030**



Coal



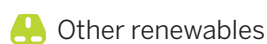
Gas



Nuclear



Wind



Other renewables



Carbon Capture and Storage



Other

Source: National Grid, bit.ly/mix2030

COMING

SOON

www.blueandgreentomorrow.com

THE GUIDE

to Climate Change



2013 REPORTS:

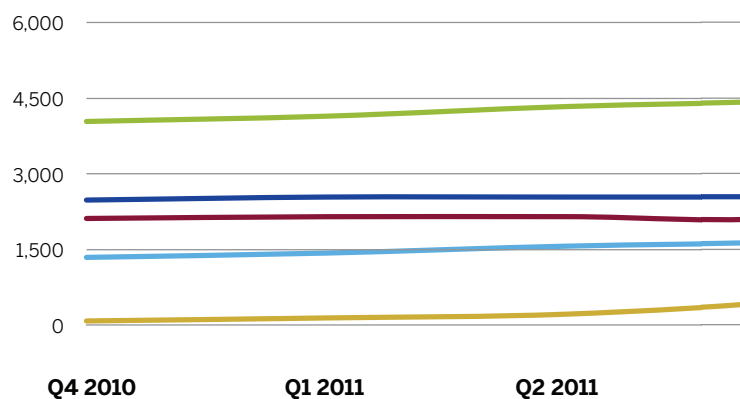
JUNE - Guide to Climate Change
JULY - Guide to Charity and Philanthropy
SEPTEMBER - Guide to Banking
OCTOBER - Guide to Investment
NOVEMBER - Guide to Shopping
DECEMBER - Guide to Sustainability
DECEMBER - Guide to 2014

JUNE 2013:

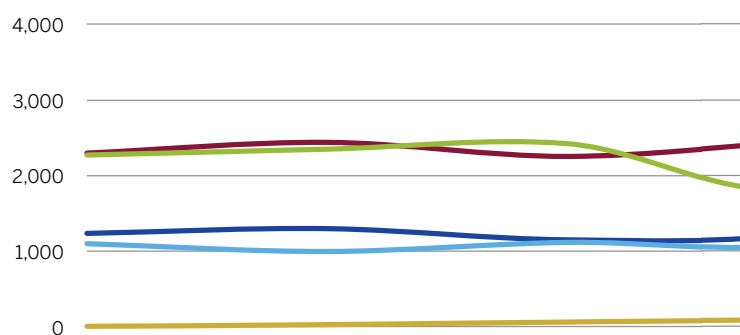
Our June report will look at climate change - a topic that often attracts polarising views in the media. We will look at the investment opportunities that arise from it, and those we ought to divest from in order to win the fight.

LIMITLESS CLEAN ENERGY: the stats

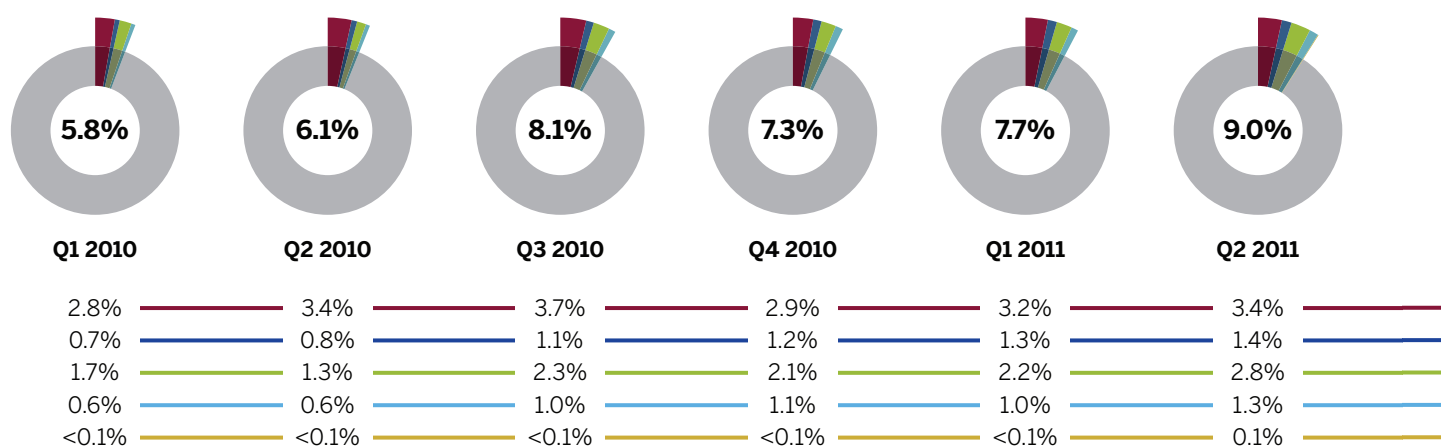
Renewable electricity cumulative installed **capacity** (MW)



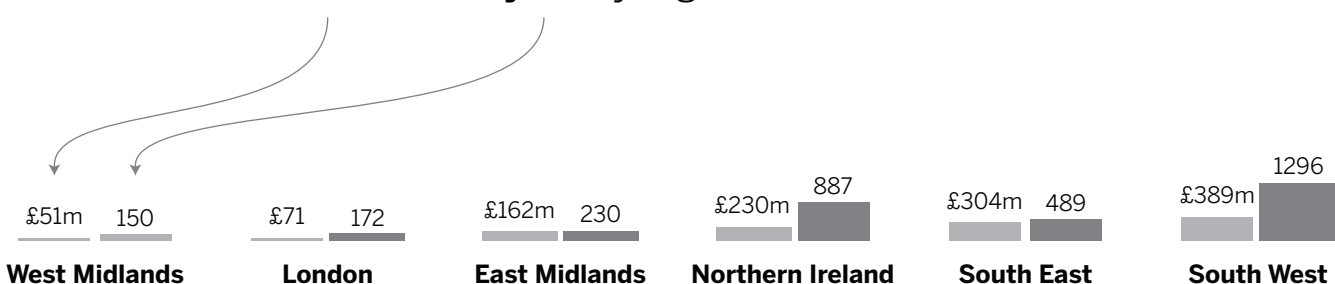
Renewable electricity **generation** (GWh)



Renewables' **share** of total electricity generation



Renewables **investment** and **jobs** by region





Bioenergy



Hydro



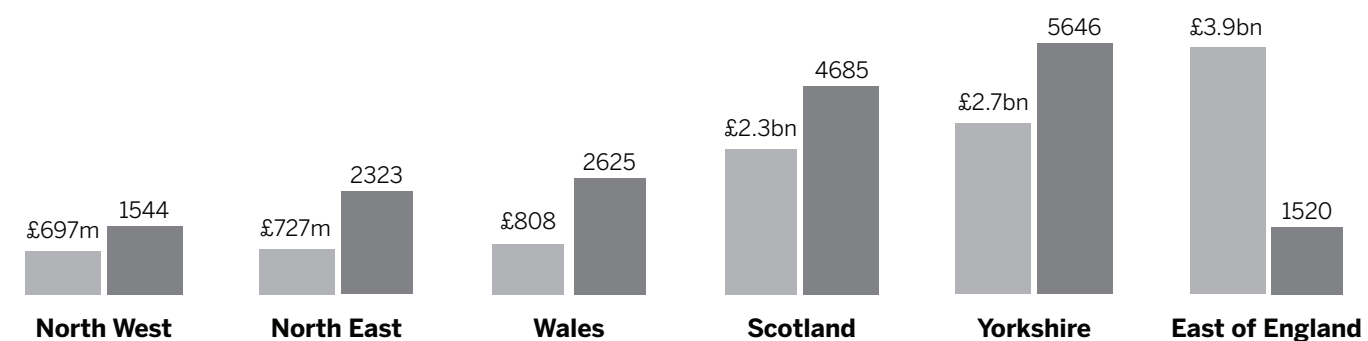
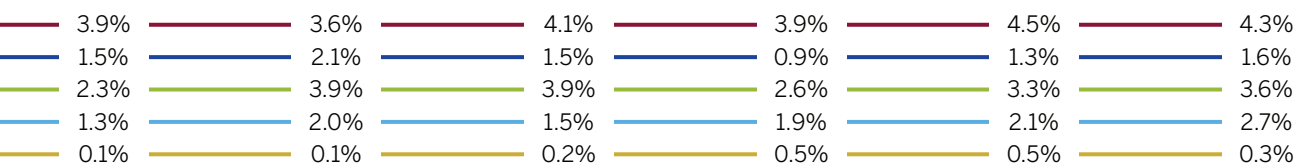
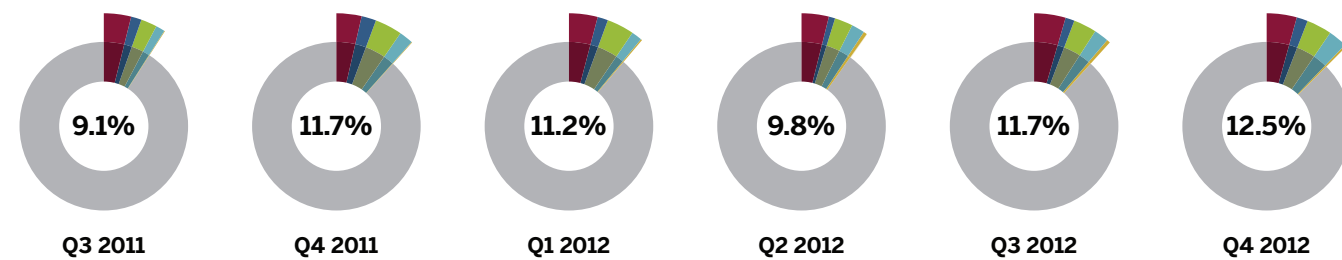
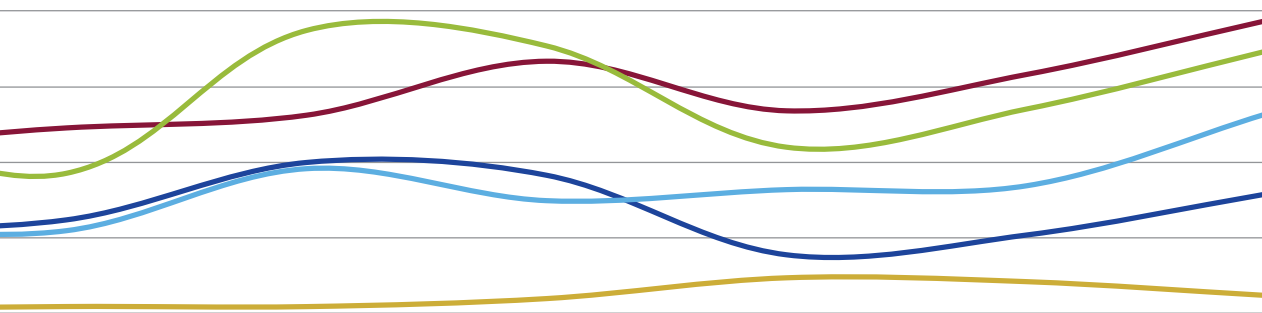
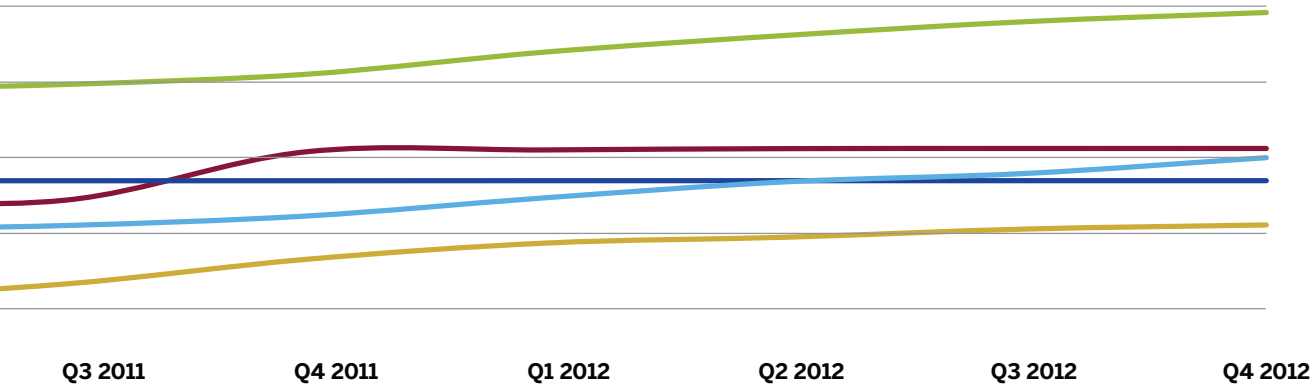
Onshore wind



Offshore wind



Solar PV, wave and tidal



RENEWABLES WILL WIN. IT'S JUST A QUESTION OF WHEN

BLUE & GREEN TOMORROW CAUGHT UP WITH GAYNOR HARTNELL, THE RENEWABLE ENERGY ASSOCIATION'S (REA) OUTGOING CHIEF EXECUTIVE.

We spoke to you for The Guide to Limitless Clean Energy in July last year. Can you talk us through the major events in the renewables industry between then and now?

Quite a bit, but the common thread running through it all is increased complexity, which of course is not helpful.

Support levels for large-scale power to 2017 were finally set last summer – although this spawned a series of spin-off consultations in the autumn that have still not been fully resolved. At the smaller scale, the feed-in tariff scheme sought to draw a line under the PV fiasco with a complicated set of rules to change the tariffs in response to



“ I’M SURE THE GOVERNMENT HASN’T SET OUT TO UNDERMINE INVESTOR CONFIDENCE IN RENEWABLE ENERGY, BUT THAT HAS BEEN THE CONSEQUENCE OF ITS ACTIONS

deployment levels.

Not to be outdone, the renewable heat incentive produced three consultations last year – with major expansion to the scheme now delayed until April 2014. Meanwhile, transport biofuels are still waiting for government to say what it wants from them – a policy limbo that’s lasted since July 2008.

Last time we spoke, you said the government was “undermining investor confidence” in the renewable energy sector. Do you think this

is still the case 10 months on?

I do think that we’re in an unusual situation here. We’ve got a coalition government with a very tight focus on financial control, and it’s resulting in very complex policy and very little certainty on anything going forward. It’s uniquely challenging. I’m sure the government hasn’t set out to undermine investor confidence, but that has been the consequence of its actions.

The energy bill was published in December. Summarise your thoughts on whether the

government did enough for the renewable sector.

I would say that the energy bill isn’t really for the renewables sector. One of the drivers was getting renewables support into a shape the government was more comfortable with, but I see the main reason for the energy bill is to bring nuclear forward. That’s much of what it’s for.

Many people have latched onto the lack of a decarbonisation target as being the most significant shortfall. I think that’s a symptom of the immense uncertainty created by conflicting messages coming out from this government.

It seems to want to pitch gas versus renewables or nuclear versus renewables; it’s wrong to have done this, whether by design or by mistake.

The REA conducted a survey earlier this year that showed 96% of the industry was apprehensive about the UK meeting its 2020 renewables target [see page 25]. Why is this and do you think this lack of confidence is salvageable?

Just to put it in context, the UK has never met a renewables target since it started setting them in 1990. So missing a target is par for the course. Usually, a near-term target is missed; it is superseded by a longer-term target which is bigger; and the trajectory carries on with greater investment in renewables.

There’s a balance to be struck between near-term targets, which keeps the focus and pressure on, and simply making sure we’re on the right trajectory.

Whilst renewable capacity is clearly increasing and public support is there for it, I personally wouldn’t imagine that this renewables target is going to be met by 2020. It’ll be met eventually, and then we’ll go on beyond it, but I don’t think 2020 is realistic. But we shouldn’t let up the pressure.

Do you think consumers and investors share this lack of

confidence in renewables displayed by the industry?

If you're talking about the average consumer – the man or the woman on the street – I don't think most even realise that there is a renewables target. They're far more concerned about the energy bills.

Beyond that, if they think about it in great depth at all, they will likely believe what the media tells them, which is unfortunately a bit of a distorted message.

As far as investors go, it varies by sector. Debt lenders are going to struggle to get to grips and be confident with UK policy, but set against that the UK generally has a good reputation for not making retrospective changes – and long may that continue.

Many of them will hopefully see beyond the current policy uncertainty and just realise that renewables are on the right trajectory. Those investing in technology development are still looking at this market pretty favourably.

You announced in March that you would be stepping down from your role after over a decade at the REA. What was the hardest part of making that decision?

I feel like I'm walking away from something I've been striving to achieve for 20 years now – but the job's not actually done.

I wanted there to be one single, professional, united and well-resourced trade body for renewables. That became my objective not long after I started working at the British Wind Energy Association back in 1995.

I've not achieved it during my time and I'm not sure anyone could've achieved it actually. Just at this moment, if anything, it's looking more distant now than it ever did, which is a frustration.

Tensions generally are mounting within the industry, and this administration, I must say, is particularly difficult to work with.

“ WE’VE GOT A COALITION GOVERNMENT WITH A VERY TIGHT FOCUS ON FINANCIAL CONTROL, AND IT’S RESULTING IN VERY COMPLEX POLICY AND VERY LITTLE CERTAINTY ON ANYTHING GOING FORWARD ”

What advice would you give to your successor?

Running a pan-technology trade association is difficult, but you've got to have some principles and you've got to stick to them like a limpet otherwise things start to fall apart. If I regret anything, it's not making that point clearer all the way through.

What's the biggest challenge going forward for the REA?

So far we've been supportive of all of the different renewable technologies – even the ones that are currently more expensive, because we see potential for them in terms of their costs coming down and the economic, industrial benefit that they offer to UK plc.

But it is coming to the time when things might start dropping off, either because they have become commercial, or they are clearly never going to achieve that. I think that will be a challenge for the REA going forward – how to manage that transition.

What has been your greatest achievement while REA chief executive?

It's difficult to single out one particular thing but I am leaving

the REA as the largest energy trade association in the UK with more than 1,100 members, with renewables firmly in the energy mix and an industry moving in the right direction, although still facing a bumpy ride at times.

The government recognises the economic opportunity within renewables but there's clearly still some way to go.

What are your predictions for renewables in the UK?

We desperately need a positive balance of payments to deal with our debt. Increasing dependence on imported gas flies in the face of this, and exploring our renewable resources seems the only credible alternative. Personally, I don't think that nuclear is going to make a major difference. If there was a dash for gas and it's imported gas, that will be really bad news for the UK.

If we can exploit our shale gas in an environmentally sustainable manner – and that's a big if – that would be better, but only if we accompany it with a really dedicated push for renewables.

Ultimately, I think renewables, will win out over all alternatives. It's just a question of when.



96% OF THE RENEWABLES INDUSTRY APPREHENSIVE ABOUT UK TARGETS

A SURVEY OF SENIOR MANAGERS FROM SOME OF THE UK'S LEADING RENEWABLES FIRMS HAS SHOWN THAT ONLY 4% ARE CONFIDENT THAT THE UK CAN MEET ITS CLEAN ENERGY TARGETS IN TIME FOR 2020.

The Renewable Energy Association's (REA) Renewables Industry Confidence Index looks at the current and future state of the industry, and found that only a small minority of respondents feel that the UK is in a 'good' or 'excellent' position to meet its binding target to generate 15% of energy from renewables in just seven years' time.

Sixty-eight senior managers from the transport, heat and electricity sectors responded to the survey, with 51% of those believing that the government's new contracts for difference (CfD) would be ineffective in driving renewable energy investment. Meanwhile, 70% said the lack of a decarbonisation target in the energy bill sent out poor signals.

"The UK has to achieve a higher growth rate than any other member state to reach its 2020 renewables target", said Gaynor Hartnell, the REA's chief executive [see page 22].

"Mixed messages remain a problem and the industry needs policy certainty and political consistency.

"The prize is up to 400,000 jobs by 2020, economic growth and greatly improved energy security."

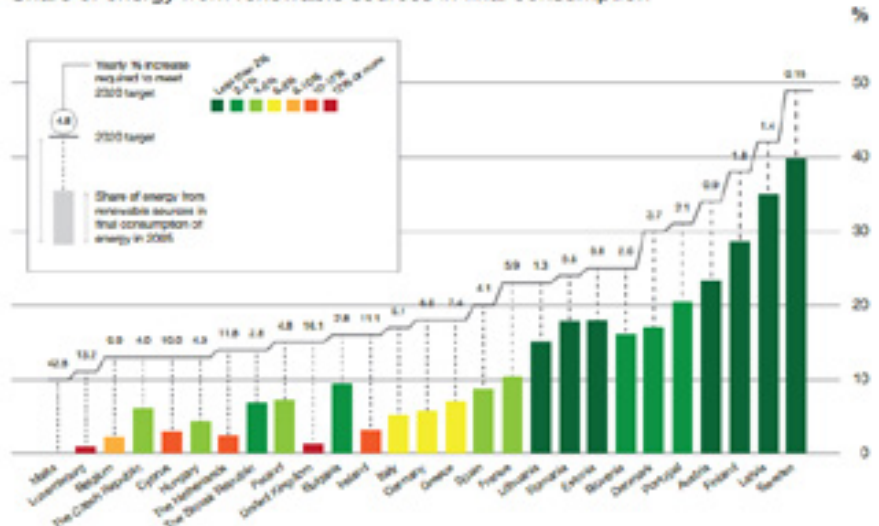
Although the insider outlook doesn't appear positive, the survey showed no overall deterioration in employment over the past six months. A quarter of firms expected to see jobs increase within the industry over the next year, while 62% expected employment levels to remain the same.

Hartnell said the poll will be repeated every six months in order to build up a comprehensive picture showing trends in confidence levels, adding, "Our aim is to provide government and stakeholders with a tool to gauge how policies are being received."



The REA combined data on "short-term business outlook with confidence in meeting the 2020 target and confidence" to create the Renewables Industry Confidence Index

Share of energy from renewable sources in final consumption



IN CONVERSATION WITH RENEWABLE ENERGY PIONEERS

BLUE & GREEN TOMORROW IS A SPONSOR AT THE BRITISH RENEWABLE ENERGY AWARDS 2013 IN JUNE – AN ANNUAL EVENT HOSTED BY THE RENEWABLE ENERGY ASSOCIATION (REA).

The REA recently revealed the shortlisted companies and individuals that will vie for accolades, and after months of policy uncertainty, it will be a chance to champion innovation and excellence across the renewables sector. Nominees include Good Energy [see page 12], Westmill Solar Co-operative and Solarcentury.

As a preview to the event, we caught up with the five companies in the pioneer award category – which Blue & Green Tomorrow is sponsoring – to find out more about

them and renewables more generally.

- Page 27 – Dytecna
- Page 28 – Eco Sustainable Solutions
- Page 29 – Golden Gates Housing Trust
- Page 30 – Lancashire County Pension Fund
- Page 31 – Tamar Energy

For more information about the British Renewable Energy Awards 2013, see page 5 of this guide or visit: www.r-e-a.net/events/british-renewable-energy-awards-2013

REA's mission is to bring renewables into the mainstream

More renewable energy in the UK means less reliance on energy imports, more jobs & lower greenhouse gas emissions

The UK is committed to achieving 15% of its total energy from renewables by 2020. The REA works closely with politicians, officials and others to ensure the correct legislative and regulatory framework for growth in this sector, enabling renewables to deliver an increasing contribution to the UK's electricity, heat and transport needs.

The REA represents renewable energy producers and promotes the use of all forms of renewable energy in the UK. A trusted voice for the industry, the REA is the only trade body representing the full range of technologies across all applications: power, heat, transport and renewable gas. Our corporate membership consists of over 950 companies ranging from energy producers, law firms & finance houses to major multi-nationals & sole traders.



STA is affiliated to the REA

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RENEWABLE ENERGY ASSOCIATION
The voice of the UK's renewables industry

DYTECNA

Describe your primary drivers for investing in, or developing, renewable energy.

Commercial realities of reliance on a single market in a changing business environment initiated the drive. Investing our core competencies and facilities to support and develop novel and emerging technologies from industry and academia is a simple but effective method of realising business growth and diversification while supporting UK based innovation.

Is the government doing enough to support renewable energy? What should it be doing?

Marginally, but in a wholly haphazard and confused manner that prevents long-term planning and is self-defeating as it discourages private investment. Co-ordination across all renewable technologies with a strategy supported by government and industry would enable expansion and investment with minimal need for public subsidy.

What are the consequences of failing to make the most of the UK's renewable potential?

Exposure to economic and energy fragility, rising energy prices, inability to inwardly develop and invest with certainty, loss of jobs, export potential, relinquishing the UK based technological lead. Existing policy will place the UK energy supply and thereby domestic pricing in the hands of offshore suppliers.

Is renewable energy becoming mainstream? Why do you say that?

It is not there yet, primarily due to the inability of the government to develop, adopt and stick to a coherent strategic approach, vital for private investment. The public perception differs; media attention and the 'newsworthy' aspect of the technology make it mainstream due to the political intrigue and public battles.

Looking into the future, what will the renewable energy sector look like in 10 years' time?

The sudden public shock likely within five years due to the reduction of UK based generation capacity and actual realisation that energy delivery really is fragile will change the industry. Most of the smaller emerging technology companies will have been absorbed by larger entities, (headed by existing oil and gas corporates) already positioning and acquiring the 'right' technologies.

Dytecna, founded in 1947, employs around 240 personnel located at three main UK fabrication sites delivering engineering design and systems integration solutions, primarily to the UK defence industry. Recent diversification activity has seen thriving partnerships evolve supporting emerging technology in a wide range of renewable energy and green technology sectors.



ECO SUSTAINABLE SOLUTIONS

Describe your primary drivers for investing in, or developing, renewable energy.

Eco always focus on high growth areas for business development and so the renewable energy sector is a natural fit for a company such as Eco.

Is the government doing enough to support renewable energy? What should it be doing?

It's a balance if too much money is chucked at an area then much is wasted i believe speaking for UK PLC they have it about right -

What are the consequences of failing to make the most of the UK's renewable potential?

Climate change affecting us all both financially and socially, just read the Stern report.

Is renewable energy becoming mainstream? Why do you say that?

It has taken recycling 15 years to become main stream so renewable energy is still in its infancy but it is maturing fast

Looking into the future, what will the renewable energy sector look like in 10 years' time?

It will be well established – hopefully government targets will be met and UK plc will have done its bit in combating climate change however the drive towards more sustainable living will be a big focus on society.

Eco Sustainable Solutions was formed in 1993 by managing director Trelawney Dampney. Its early focus was on composting and traditional organic recycling. Over the last few years, some of the resource (waste) that it handles has been used to create renewable energy with a move into anaerobic digestion and a soon-to-be-built wood-to-energy plant, and Eco is now undertaking a PV development.



www.thisiseco.co.uk

GOLDEN GATES HOUSING TRUST

Describe your primary drivers for investing in, or developing, renewable energy.

2010 saw the announcement of the government's welfare reforms. For our tenants this was likely to mean new challenges in the light of reductions to their incomes at a time of rising inflation linked to large increase in the cost of energy. Our new board was determined to do something to support our tenants and marked their commitment by making energy efficiency and affordable warmth an early priority for the new organisation.

Is the government doing enough to support renewable energy? What should it be doing?

The reduction of the feed-in tariff saw a massive dip within the renewable sector and ensured the reason for the installations was not for a pot of gold at the end of the rainbow. But for the right reasons! To allow the social housing sector to help more of its customers there should be a review of policy.

Golden Gates Housing Trust is a registered provider of social housing, creating quality homes and neighbourhoods where people want to live.



What are the consequences of failing to make the most of the UK's renewable potential?

The UK has the skill base; let's develop the renewables market and take advantage of the resources available. Failure to do so will mean unemployment and not allowing the renewable market to go mainstream.

Is renewable energy becoming mainstream? Why do you say that?

I think it's fair to say that renewable energy is visible in most towns and cities across the UK. Promotion of renewable energy is increasing through media and public understanding.

Looking into the future, what will the renewable energy sector look like in 10 years' time?

Renewable energy is changing daily! In 10 years' time we will see renewables on every street in the country. Due to the high demand and rising costs in traditional energy streams.

LANCASHIRE COUNTY PENSION FUND

Describe your primary drivers for investing in, or developing, renewable energy.

As a pension fund, we look for long-term, secure cashflows, ideally linked to inflation. A long-term off-take agreement to a stable utility, often supported by government subsidy, fits the bill perfectly. Of course, our members are in favour of environmental responsibility, too.

Is the government doing enough to support renewable energy? What should it be doing?

Historic subsidies like feed-in tariffs have certainly kickstarted investment in solar and now that industry stands up with much lower subsidy. Encouraging innovation to make renewables economic in the long run without a subsidy must be worthwhile.

What are the consequences of failing to make the most of the UK's renewable potential?

It's clear that renewables can make a contribution to reducing the UK's reliance on 'dirtier' forms of energy and of course on energy imports. It's also clear that the UK has

a fabulous track record in scientific innovation. So a failure to increase renewable usage leaves us vulnerable; but the decisions made need to be sustainable in their own right.

Is renewable energy becoming mainstream? Why do you say that?

The total contribution of renewable energy to the UK's overall energy usage remains very small. Solutions need to be found that don't create local opposition as, for example, onshore wind sometimes can. Individuals need to really see and feel the benefit of choosing renewable sources and not perceive any personal downside from their adoption.

Looking into the future, what will the renewable energy sector look like in 10 years' time?

Growth may come from an unexpected source rather than an established technology like solar or wind. Initiatives to make individual homes and communities more self-sufficient are likely to gain further ground – smaller scale but widely distributed sources of renewable energy.

The Lancashire County Pension Fund manages £5 billion of assets to meet the pensions of over 143,000 members who are current and former employees of the council and related employers. It is one of the largest and most innovative of the local government pension schemes.



www.lancashire.gov.uk

TAMAR ENERGY

Describe your primary drivers for investing in, or developing, renewable energy.

The UK needs to cut carbon emissions, ensure energy security, divert waste from landfill and create green jobs. Anaerobic digestion (AD) does all of this and is currently underdeveloped in the UK. We aim to transform this by creating a UK-wide network of AD plants that will generate 100 megawatts (MW) of renewable energy.

Is the government doing enough to support renewable energy? What should it be doing?

The coalition government has voiced support for AD, and its potential to contribute to the UK's renewable energy targets. The main thing the government can do to help meet its own targets is keep the level of support to all sizes of project stable. There won't be a ban on food waste to landfill until the government is confident the food waste recycling infrastructure exists – Tamar Energy intends to ensure this is the case by the end of this decade.

What are the consequences of failing to make the most of the UK's renewable potential?

The UK needs to keep the lights on and its emissions down, and it's going to take a portfolio of renewable energy technologies to deliver the nation's energy targets. Removing the support mechanisms, introducing doubt and

delaying decisions will inhibit the UK's renewable potential, making finance hard to come by and costing green jobs, now and in the future.

Is renewable energy becoming mainstream? Why do you say that?

Not yet, but local projects such as home-based solar and AD really show the general public that renewables work. The thousands soon to be employed in maintaining offshore wind farms will be the confirmation. We wouldn't have been able to raise £97m from institutional investors if AD didn't have the chance to go mainstream, and we believe our model is replicable in other cleantech sectors.

Looking into the future, what will the renewable energy sector look like in 10 years' time?

In terms of energy generated, in 10 years offshore wind will dominate – but this will be largely invisible to the general public. AD plants will be a familiar sight across the UK, generating electricity and heat or supplying biomethane into the gas network, while providing local farmers with fertiliser. Beyond this, the power network will be smarter and more efficient, and we'll be seeing the first wave of new technologies like ultra-cheap solar and power storage that will eventually allow the UK to move off fossil fuels altogether.

Tamar Energy is the UK's first renewable energy business with an exclusive focus on anaerobic digestion (AD). By 2018, it plans to have a network of more than 40 plants around the UK, creating 100MW of renewable energy through the cost-effective, sustainable treatment of organic waste.



TO 2020 AND BEYOND...

BY MIKE LANDY, SENIOR POLICY ANALYST AT THE RENEWABLE ENERGY ASSOCIATION

THE RENEWABLE ENERGY DIRECTIVE (RED) REQUIRES THAT THE EUROPEAN UNION (EU) PRODUCES AT LEAST 20% OF ITS TOTAL ENERGY CONSUMPTION FROM RENEWABLES BY 2020, WHILE THE UK MUST ACHIEVE A NATIONAL TARGET OF 15%. WITH MUCH DEBATE CURRENTLY UNDERWAY IN THE EU IN TERMS OF WHAT OUR 2030 TARGETS SHOULD INCLUDE, THE RENEWABLE ENERGY ASSOCIATION (REA) HAS BEEN ACTIVE IN MONITORING EU AND NATIONAL PROGRESS AS WELL AS INVESTIGATING AND REPORTING THE KEY INDUSTRY PERSPECTIVE.

KEEPING ON TRACK OF OUR EU TARGETS

The REA is proudly representing the UK in the pan-European project, Keep on track!, which is supported under the EU's Intelligent Energy Europe programme and is co-ordinated by the European Renewable Energy Council (EREC).

The project, which runs from 2012 to 2015, aims to monitor that the actual deployment of renewable energy across the EU is in line with the RED's trajectories towards the final 20% share.

Through a series of work packages the project intends to identify any emerging shortfall, both for the individual member states as well as for the EU as a whole, and the barriers that are preventing or slowing deployment. Using this information it provides policy recommendations and solutions to address the issues and in turn put us back on track as illustrated in figure 1.

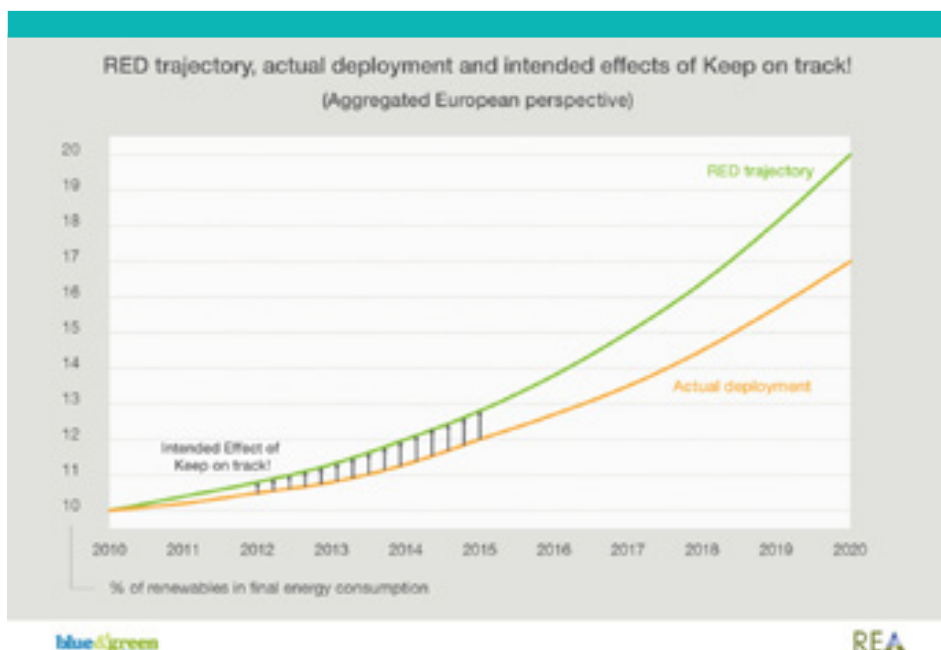


FIGURE 1: THE INTENDED EFFECT OF KEEP ON TRACK! IN TERMS OF TACKLING ANY SHORTFALLS IN THE DEPLOYMENT TRAJECTORY.

The REA has so far provided Keep on track! with national statistics, supplied opinions on modelling scenarios, assessed the key barriers that hinder our achievement of the targets and offered thoughts and advice on policy recommendations.

This will be combined with that of the other member states into a series of annual documents including an 'EU Tracking Roadmap', an analysis of deviations and barriers and a report on policy recommendations. The first editions of these are due to be released during the European Union Sustainable Energy Week (EUSEW), June 24-28 2013, and will be made available online*.

AN INDUSTRY PERSPECTIVE

Whilst Keep on track! aims to measure and monitor progress towards EU targets, the REA has recently furthered this investigation by assessing industry confidence in the outlook for the UK renewable energy sector [see page 25]. Senior managers from 68 companies

responded to the first edition of the bi-annual survey, giving an overall confidence index result of 47%. The REA believes that a score of at least 75% is required for the UK to have good prospects of meeting its 2020 target. The findings confirmed that there is clearly plenty of room for improvement.

As shown in figure 2, 68% of respondents had poor or very poor confidence in whether the UK will achieve its 15% renewable energy target.

Despite this and the other less-than-positive results, a certain amount of optimism was evident as respondents predicted that their turnover, new business and employment prospects would improve in the coming 6-12 months.

The REA is looking forward to seeing if these predictions have been realised and if industry confidence in meeting our targets has improved when the second Renewable Industry Confidence Survey is carried out in August 2013.

THE CHALLENGING ROAD AHEAD

While we await Keep on track!'s publications and future confidence analysis through the industry survey, the commission's recent 'Renewable Energy Progress Report' suggested that renewables at the EU level have made a generally solid and promising start. However, with slower than expected removal of key barriers, disruptive changes to support schemes, increasing deployment rates to get to 2020 and continued economic challenges, the outlook for achieving the EU's 2020 targets is not so promising.

The REA also notes that when considering our national situation it is important to remember that the UK has to achieve the most challenging growth rate in the EU (bar Malta) in order to meet our 2020 target. With a required average annual growth rate of 16% we cannot afford to become complacent.

In light of such hurdles and limited industry confidence, strong representation across all renewables technologies is required to allow this vital sector to flourish. Policies need to be simplified and streamlined and mandatory national targets set for 2030 to maintain momentum to 2020 and beyond.

FOR FURTHER INFORMATION ON KEEP ON TRACK! PLEASE VISIT WWW.KEEPONTRACK.EU OR CONTACT MIKE LANDY AT MLANDY@R-E-A.NET.

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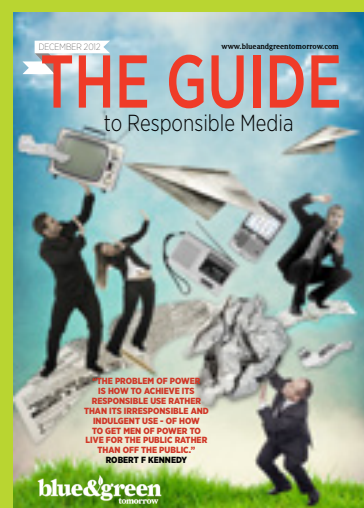
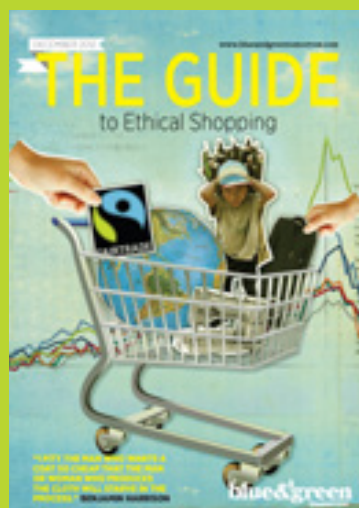


FIGURE 2: INDUSTRY CONFIDENCE IN THE RELEVANT STATEMENTS.

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TOP

reports



Blue & Green Tomorrow produced seven reports in 2012. Click on the respective covers to read them all.

“TO TRULY TRANSFORM OUR ECONOMY, PROTECT OUR SECURITY, AND SAVE OUR PLANET FROM THE RAVAGES OF CLIMATE CHANGE, WE NEED TO ULTIMATELY MAKE CLEAN, RENEWABLE ENERGY THE PROFITABLE KIND OF ENERGY”

– US PRESIDENT BARACK OBAMA

.....
“THE FUEL IN THE EARTH WILL BE EXHAUSTED IN A THOUSAND OR MORE YEARS, AND ITS MINERAL WEALTH, BUT MAN WILL FIND SUBSTITUTES FOR THESE IN THE WINDS, THE WAVES, THE SUN’S HEAT, AND SO FORTH” – *American naturalist John Burroughs*

.....
“JUST AS FOSSIL **FUELS FROM CONVENTIONAL SOURCES ARE**

FINITE AND ARE BECOMING DEPLETED, THOSE FROM DIFFICULT SOURCES WILL ALSO RUN OUT. IF WE PUT ALL OUR ENERGY AND RESOURCES INTO CONTINUED FOSSIL FUEL EXTRACTION, WE WILL HAVE LOST AN OPPORTUNITY TO HAVE INVESTED IN RENEWABLE ENERGY” – *CANADIAN SCIENTIST DAVID SUZUKI*

.....
“THERE IS ONE FORECAST OF WHICH YOU CAN ALREADY BE SURE:

SOMEDAY
renewable energy
WILL BE THE ONLY WAY FOR PEOPLE TO
satisfy their energy needs”

– German politician Hermann Scheer

.....
“WE ARE LIKE TENANT FARMERS CHOPPING DOWN THE FENCE AROUND OUR HOUSE FOR FUEL WHEN WE SHOULD BE USING NATURE’S INEXHAUSTIBLE SOURCES OF ENERGY — SUN, WIND AND TIDE. I’D PUT MY MONEY ON THE SUN AND SOLAR ENERGY. WHAT A SOURCE OF POWER! I HOPE WE DON’T HAVE TO WAIT UNTIL OIL AND COAL RUN OUT BEFORE WE TACKLE THAT.”

– *American inventor Thomas Edison*

FIXING THE PLANET WITH CLEAN ENERGY

JENNIFER GRANHOLM WAS GOVERNOR OF MICHIGAN BETWEEN 2002 AND 2011. IN THAT TIME, SHE WAS RE-ELECTED WITH THE LARGEST NUMBER OF VOTES EVER CAST IN THE STATE. AND DURING HER PERIOD IN OFFICE, SHE BECAME A PASSIONATE ADVOCATE OF RENEWABLE ENERGY. SHE RECENTLY SPOKE TO BLUE & GREEN TOMORROW.

You're arguably one of the most ardent political supporters of clean energy in the US. What inspired you to get behind the cause?

Clearly we have a broken planet. But what was more immediate for me as governor of the state with the toughest economy in the nation were the loss of jobs that I saw when the manufacturing sector melted down in Michigan.

I saw clean energy as a way to replace the manufacturing jobs that had shifted to low wage countries. If auto workers could bend steel to build cars, surely they could bend steel (and lightweight materials) to make wind turbines.

For many people, the climate change imperative is enough to persuade them in favour of clean energy. For others, it's simply a great, long-term investment opportunity. What are your main drivers?

For me, it's the powerful triple bottom line: it's a win for employment in the US; it's a win for the planet; and it's an

investment with good returns.

Two of the most popular criticisms of renewable energy revolve around its efficiency and its status as a so-called "subsidy junkie". What are your thoughts on both?

The issues are intertwined. The reason subsidies are required for new technologies is because the market will not readily bear early stage experimentation in order to get to the level of efficiency necessary to make the product marketable.

Subsidies do not work as a permanent strategy; they are a bridge to the deployment of breakthrough technologies. There should also be demand side strategies during the early phases of development as well.

In your TED talk [<http://youtu.be/GMynksvCcUI>], you say, "Our economic competitors ... are eating us for lunch, and we can get in the game or not. We can be at the table, or we can be on the table." What



“ I’M VERY BULLISH ON CLEAN ENERGY ADVANCEMENTS. IT’S NOT A QUESTION OF IF; IT’S MERELY A QUESTION OF WHEN

are the consequences of failing to adopt cleaner energy?

When we fail to act, we are accomplices to the loss of jobs in America. As economic bystanders, we fail to recognise that our economic competitors are not using laissez-faire strategies to win these investments. Moreover, they rub their hands in glee at the notion that we are doing nothing. Our passivity is their call to action. Our passivity is our greatest weakness in the competition for jobs and for healing our planet.

Barack Obama is often praised for his words on climate change and renewable energy, but is sometimes criticised for lacking action on both. What would you say to these critics?

The critics need to mobilise to elect a majority of Congress who agree with the president. He cannot act unilaterally.

US and UK polls show that the public is overwhelmingly behind the increased development of renewable energy. Why then does it still make up a relatively small section of our energy supply?

In the US, the powerful fossil fuel interests have been very successful at electing their candidates and blocking renewable energy goals at the state level. In some cases, those same interests have sought repeal of even modest renewable portfolio standard (RPS) goals at the state level. At the federal level, the failure of Congress to heed the wisdom of the citizens is exactly why, in recent polling, congressional favourability rating falls lower than that of lice, cockroaches and root canals.

What are your predictions for the future of clean energy more generally?

I’m very bullish on clean energy advancements. It’s not a question of if; it’s merely a question of when. With the record-breaking weather events cascading over the planet each year, the people will lead the politicians to take action. I just hope the politicians listen before their inaction causes planetary damage that is irreversible.

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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.

And though that means there's a lot of noise and rubbish out there, there's a lot of great stuff, too.

The role of media has changed. We still write stories every day about the amazing people and organisations that make a positive difference to the world in which we live, but we also promote and publish the most relevant blogs, tweets and articles from our readers.

We want to report on the diverse voices of our audience and beyond—regular people writing as travellers, investors and consumers.

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We can't publish everything, but if it's likely to resonate with our readers or challenge them in some way, you'll fly to the top of our list.

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with your thoughts and contributions.

RENEWABLES: A SENSIBLE BOOST FOR LOCAL COMMUNITIES

BY EMMA WEBSDALE

Much of the opposition against renewable energy centres on aesthetics or the fact people don't feel like they need another turbine in a nearby field.

With a touch of a button in their homes, lights begin to shine, the kettle starts to boil and the TV flicks on. Therefore to many, it doesn't really matter where the electricity comes from; as long as it is there when they want and need it. While some feel apathetic towards renewables, others are vehemently against it.

However, in a recent poll conducted by the Department of Energy and Climate Change (DECC), 82% of respondents said they were in support of renewables. Meanwhile, another poll by ComRes on behalf of trade body RenewableUK, which took place before the recent local elections, revealed that 35% of the public are more likely to vote for a candidate who supports wind farm developments.

Developing renewables projects with one eye firmly on the needs of the local community has therefore become one of the most effective methods of outlawing any opposition. But more importantly, making sure renewables not only benefit society environmentally; but financially, too.

Renewable energy benefits the local economy

Good Energy, the UK's only 100% renewable electricity supplier, launched a local energy tariff in January for people living within a 2km radius of Delabole Wind Farm in Cornwall. Nearby residents get discounts on their energy bills – simply because of their location. The firm has even pledged to pay out 'windfall' bonuses to residents during years when the turbines perform better than expected. Juliet Davenport, Good Energy's CEO, speaks more about it on page 12 of this guide.

Investing in projects is something usually perceived as exclusively for the wealthiest in society. But through platforms such as Abundance [see page 42] and Microgenius, the public can help finance renewable energy for as little as £5, while also making a healthy annual return. These are investment opportunities that really do work.

Meanwhile, some 2,300 individuals invested in Westmill Wind Co-operative – the largest community-owned wind farm in the UK. Its sister project, Westmill Solar Co-operative, achieved similar success.

But the best thing about Abundance, Microgenius and the Westmill projects is that it's not just the local communities who are investing. People from the other end of the country stumped up



cash – simply because they saw it as a great, long-term investment opportunity.

In an introduction to RenewableUK's 2011 report, 'Onshore Wind - A Community Commitment', chief executive Maria McCaffery, wrote, "Per each installed megawatt (MW) around £1m stays in the community at local and regional level during the lifetime of the project." This provides evidence that fantastic economic benefits can derive from renewable energy.

Renewable energy means more control

Renewable energy can boost employment, too. Because of the localism bill – a bill that seeks to ensure developers and local communities interact during the earliest stages of planning – a local community's needs, concerns and desires can be factored into proposals. Quite often, local projects hire local workers to help with the construction. The development of renewable energy

within communities also helps local people take control of their own energy future. Instead of signing up to a future of increasingly expensive, foreign, finite energy [see page 16], renewables provide a clean and limitless alternative.

A Co-operative poll conducted by ICM in 2012 revealed that 68% of people would support community-based renewable energy projects, compared to the 7% that said that they wouldn't. With the likes of Westmill providing communities with a shining example of how to engage local people with green energy, these kind of projects are really starting to disrupt the status quo.

It is also becoming apparent that the renewable industry holds the capability of becoming a significant driver of economic and employment growth. RenewableUK reported a 91% increase in employment between 2008-2011 within the UK's wind energy sector. In this time, wind doubled its contribution to the grid.

This is just a snapshot of why renewable energy should not be ignored. Through providing jobs and skills; piping clean energy straight to our homes and businesses; reducing energy bills; and creating investment opportunities, local communities are starting to take control of their own future.

CROWDFUNDING THE FUTURE OF ENERGY

BRUCE DAVIS TALKS TO BLUE & GREEN TOMORROW ABOUT ABUNDANCE GENERATION – A DEMOCRATIC RENEWABLE ENERGY FUNDING PLATFORM THAT ALLOWS INVESTMENT OF AS LITTLE AS £5.



What is Abundance Generation?

At its simplest, we provide finance for renewable energy projects direct from the general public. We do that through a regulated platform, which allows people to invest directly into a project that they choose, and they get a return based on the energy produced.

We offer products called debentures, which are bonds or debts lent to the wind farm or the solar project, and then they are secured on a share of the revenue that that project generates over its lifetime.

So people lend the money as an IOU, and they get their money back – not as a lump sum at the end, but over the lifetime of the project – and a bit of income return on the top, which works out somewhere between 6-9% as an IRR return. It's not an interest rate; it's called an internal rate of return (IRR). On the wind farm, for example, people can expect to get between 2-2.3 times the money they've put in – but obviously some of that is the capital that they've invested.

What problem is Abundance uniquely trying to solve?

We were originally set up because there was a massive hole in the financing of



“ WE’RE SAYING WE’RE A MORE SUSTAINABLE MODEL, BECAUSE WE USE ACTUAL MONEY. WE’RE NOT USING THE CONFIDENCE OF BANKS TO LEND TO THE INDUSTRY; WE’RE USING PEOPLE’S CASH

renewable energy. It’s also a realisation of the infrastructure that needs to be built to accommodate renewable energy in the grid and make it work. Fundamentally, that’s what we set out to do.

At that point, it wasn’t just a focus of the financial crisis, but you were seeing a massive retreat from the banks from smaller-scale projects. You still had the Co-operative and Triodos and so on, but they’re relatively small and their balance sheets can’t grow at the pace required. The clever thing about Abundance in a way is that we don’t have a balance sheet. We’re not holding capital or working like a bank.

Because we’re doing this direct finance model, 100% of our customers’ money goes into the project. So the growth is only really at the pace at which people are prepared to invest.

We’re saying we’re a more sustainable model, because we use actual money. We’re not using the confidence of banks to lend to the industry; we’re using people’s cash.

On the other side, I think people are looking for high yields on their money. At the moment, they’re happy to chase riskier assets to get those yields, but we

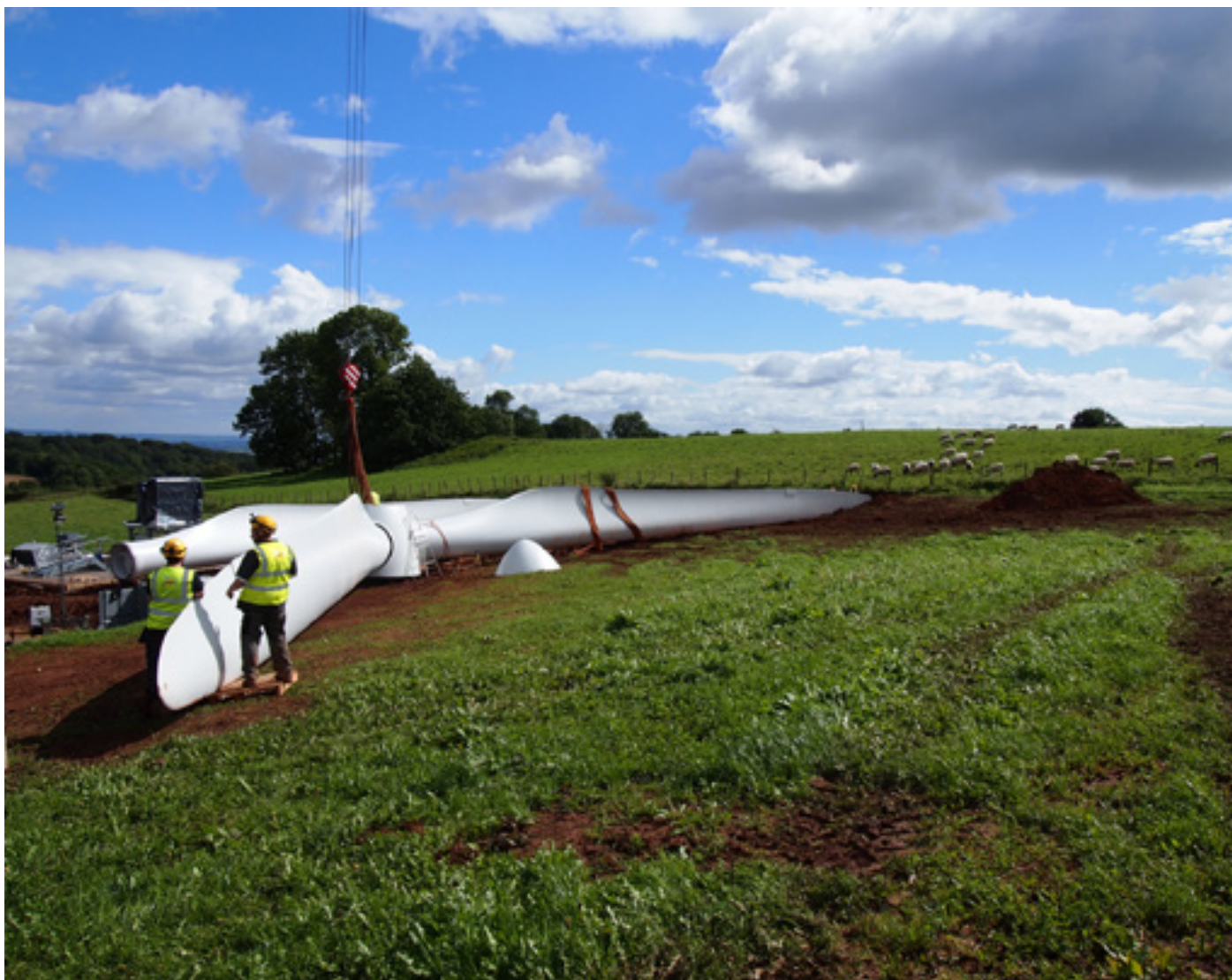
think renewable energy is a good middle ground. There are a lot of reasons to be confident about what we’re investing in. Was renewable energy always going to be the sector Abundance was going to work in or were there other options?

As a start point, it was the first one because it exists as an investment sector already for high net-worth individuals. We can see that they were making a lot of money from it, and making it accessible to the general public was a good idea.

At the time, there was a lot of talk about social impact investment, and we haven’t really seen that develop enough to offer it to an ordinary retail investor. The risks are not as easy to understand.

As part of our authorisation process with the Financial Services Authority, as it was, it was agreed that renewable energy projects presented a set of risks and rewards which were understandable by the general public and that you didn’t need to be sophisticated as an investor to put money into a wind or solar project. Has the government’s politicking and infighting over renewables affected investor confidence?

In 2013, I don’t think we’ve seen



a lot of that. But at the back end of 2012, there was a lot more hot air being blown around. We have a lot more questions about the regulatory framework and I think a lot more confusion from pretty poor quality media reporting that meant that people thought feed-in tariffs no longer existed, for example.

Do you think your model – community ownership – could really help push renewable energy into the mainstream? I think it will address this local noise that you get. The majority of people are in favour of renewable energy. I think politicians are misreading the runes, as it were.

At a micro level in terms of the planning process, you have to examine why it is these people are feeling that they need to protest. Some of it is a little bit more insidious, in that they seem to be funded by organisations beyond their community. But others, they're just operating because they're either misinformed or just don't like renewable

energy.

It's not a clearcut picture, but as a general rule of thumb, I think the industry does need to always engage with the community. It is part of the environment; it doesn't have a God-given right to develop anywhere, even though it acts like it does.

What are the overall aims for Abundance?

We're kind of spoilt for choice at the minute. I think renewable energy, for the next two years, is going to be 99% of what we do. There's plenty to do and there's some interesting projects coming down the pipeline in solar and wind. We will continue to do that and the aim is to double the business year-on-year. That's really in terms of the amount invested; that's how we measure our success.

And then, more broadly than that, we're always examining how we can work with other types of investment. So, for example, social housing is something that we've considered quite carefully.

“WE WERE ORIGINALLY SET UP BECAUSE THERE WAS A MASSIVE HOLE IN THE FINANCING OF RENEWABLE ENERGY

We've very proactive and we're having lots of conversations about social investment, but we haven't, as yet, seen an opportunity that we would want to put our effort behind to make it available for the general public. There's still some work to do to make these projects more bankable and investable by the general consumer.

www.abundancegeneration.com





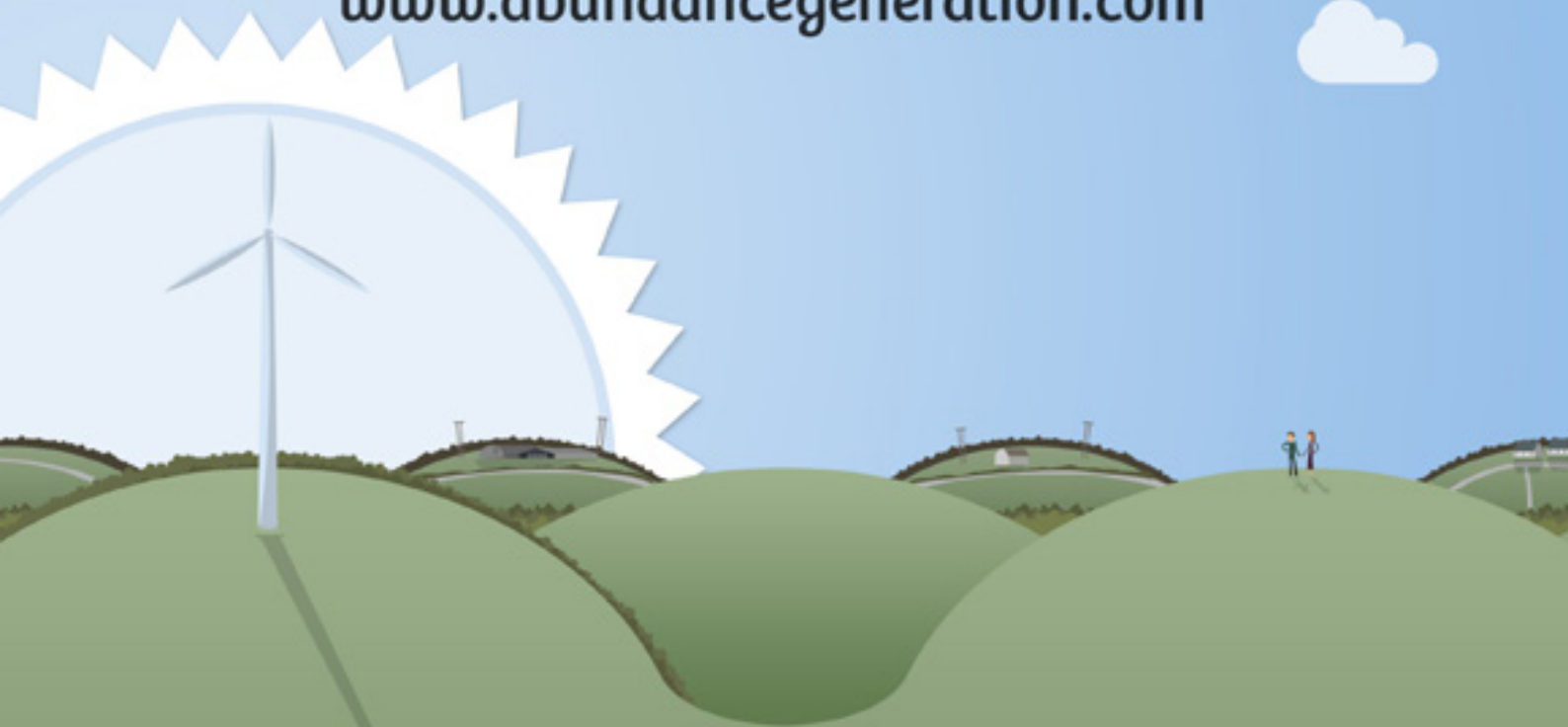
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MASTERING THE TIDES FOR CLEAN ENERGY

SWANSEA BAY COULD SOON BECOME HOME TO ONE OF THE LARGEST TIDAL POWER PROJECTS THE UK HAS EVER SEEN – A 300MW TIDAL LAGOON THAT PRODUCES ENOUGH ENERGY FOR 120,000 HOMES.



The plans have been put forward by Tidal Lagoon Swansea Bay Ltd, which hopes to build a 9.5km wall near to Swansea docks.

The wall will extend out into the sea before coming back and rejoining the land – to create an enclosed section of water of 11.5 square km that the lagoon will use to generate power.

The area's extreme tidal range – which is one of the highest anywhere in the world – will be tapped into twice a day using hydro turbine technology, producing clean, renewable energy for thousands of homes in the region.

Blue & Green Tomorrow caught up with the tidal lagoon project's chief executive Mark Shorrocks, who explained a bit more about how the development could well play a vital part in a sustainable energy transformation.



Harness the power of Swansea Bay

Your opportunity to invest in the world's first tidal lagoon power plant is coming soon . . .



What is the problem, and why does the tidal lagoon at Swansea Bay solve it?

There are so many problems. We have too much gas, coal and nuclear and not enough renewables. The UK has so many nimbys who object to onshore wind and cow the silent majority who do like wind.

We hope the tidal lagoon will not face the same problem because we'll be creating a water sports venue, long-term local jobs, a long-term amenity and we offer local ownership and hope to be able to offer local tariffs. Our vision is to create a programme of tidal lagoons, with the second and subsequent being substantially bigger than the first, such that 5,000 megawatt (MW) of tidal lagoon power comes on stream in the UK in the next 12 years. The tides rise and fall every day, twice a day and we simply capture that head difference and

generate electricity.

How is the project unique?

I hope it isn't unique in time. For now it will be the only large-scale bidirectional tidal lagoon in Europe, in effect a low head hydroelectric dam that works in both directions with bespoke turbines.

It may also be unique in that it is looking to source as much inputs locally as possible and create a bona fide tidal lagoon industry in Wales. We are under the radar as of now, yet have a consortium which includes Atkins, Voith, Alstom, Van Oord and Costain.

How has the local community reacted to the project?

Really positively. We have concluded over 160 stakeholder meetings with residents' groups, sports groups, councillors, business groups, rotary





clubs and so on.

Over 430 members of the public attended events in April. So far we have had an extremely positive response.

The elements that appeal are: it's a first for Swansea; it will be a local amenity where triathlon, swimming and sailing events can be held; jobs in South Wales will be created from assembling turbines, geo textiles, manufacturing, construction jobs, tourism, operations and maintenance once built.

What are the ingredients for a successful renewable energy development?

Long-term predictable power which is what we get from the rise and fall of the tides and the knowhow of what tide there will be every day of every year.

Local support, ownership and electricity tariffs tied to the development that you wake up and see in the morning are also important.

Some politicians and media commentators describe renewable energy as an inefficient subsidy junky. How do you respond to that?

€21 billion of subsidy for nuclear and coal versus €5 billion for renewables across Europe are the last figures I have seen. Renewables don't get anything like the support they deserve.

It is recognised that diverse sources of supply equal cheaper long-term electricity for all.

On windy days, wholesale electricity prices now drop, hence all the opposition to wind from the vested interests. On sunny days, summer peak electricity prices will now drop this summer. Renewables are starting to make electricity cheaper.

Why did you become involved in the renewable energy industry?

Because I want a planet that is still habitable for my children.

Do you think the government is doing enough to promote renewable energy?

No. But those that work in our area don't do a bad job.

The task is made difficult by limited resource. Did you know that wave, tidal stream and tidal range only have two permanent civil servants and that three quarters of the Department of Energy and Climate Change's budget goes on nuclear?

What are your projections for the future of renewable energy in the UK?

We will build between three and five lagoons delivering 5,000-10,000MW of power. Offshore wind will get built because government is insistent on it, and we will see dribs and drabs of new onshore wind. At some stage energy efficiency subsidies will be made high enough so that people can decide to invest into energy efficiency.

So lagoons plus energy efficiency is the holy grail, supported by a mix of wind, solar, hydro and nascent tidal stream devices.

WHAT DO I DO NEXT?

Having read through the Guide to Limitless Clean Energy, which we hope has opened your eyes to the wonders of renewables, 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, tourism, energy and the media. But above all, we encourage you to act upon what you've read.

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FIND A SPECIALIST ETHICAL FINANCIAL ADVISER NEAR YOU

Sustainable investment is what we write about day in, day out. Contrary to the early-90s Des'ree hit 'Crazy Maze', which begins, "Money don't make my world go round", money is what governs almost every decision we as consumers and businesses make.

It's important, therefore, that we use it as a force for good. All the financial advisers listed are specialists in ethical investment and will help you choose the best possible financial solutions that match your values.

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SWITCH YOUR ENERGY PROVIDER TO GOOD ENERGY

Even without the climate change imperative, there is a desperate need to reduce mankind's emissions. The problem is pollution and waste.

Switching to cleaner sources of energy is imperative, and Good Energy, as the UK's only 100% renewable electricity provider, is the best place to go.

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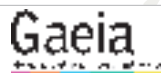
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ETHICAL FINANCIAL ADVISER DIRECTORY

BLUE & GREEN TOMORROW WORKS WITH EXPERIENCED INDEPENDENT FINANCIAL ADVISERS WHO SPECIALISE IN ETHICAL INVESTMENT AND UNDERSTAND HOW MONEY CAN BE USED TO CREATE A SECURE FUTURE FOR YOU, FOR YOUR FAMILIES AND FOR OUR PLANET. GIVE ONE OF THEM A CALL AND TALK ABOUT YOUR PLANS - YOU MAY EVEN FIND YOU SLEEP EASIER AT NIGHT IF, LIKE US, YOU WANT A BETTER FUTURE FOR ALL. YOUR HARD-EARNED MONEY CAN DO SOME OF THE HARD WORK OF MAKING THAT HAPPEN WHILE YOU SLEEP.



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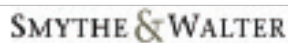
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UK GRL - Cornwall is one of the UK's most popular destinations with lots to offer. Visit the Eden project, the Lost Gardens of Heligan or watch a performance at the Minack theatre, and why not try a traditional Cornish pasty.



France – F6337 – Whether you prefer to stay in a popular town or in a remote rural location you will find a great selection of villas and gites. Visit this beautiful region of France where you will find many reasons why you will want to come back.



Italy – TA049 – Centrally located Tuscany is set within a gentle hilly region known for its vineyards and olive groves. Therefore stay in a rustic farmhouse or a cosmopolitan town house and enjoy the Mediterranean fayre and of course the wine.

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Go for a greener mortgage or insurance policy and offset some of the carbon emissions produced by your home

Visit www.YourEthicalMoney.org to find out how you can make a positive difference with your money



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