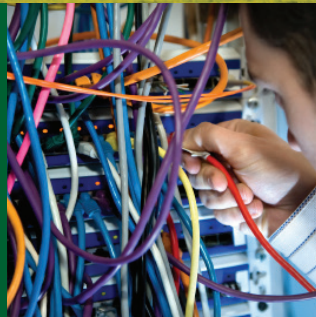




BEAMA SECTOR
TURNOVER

£12.6
BILLION



BEAMA SECTOR
EXPORTS

£4.2
BILLION



NET-ZERO BY DESIGN

Developing a UK market for low carbon technologies

BEAMA industries back the net-zero emissions by 2050 target and agree to take action in meeting the level of ambition required. The industry calls for urgent action and strong leadership from Government to support their commitment.

SUMMARY



September 2019

ELECTRICAL INDUSTRY COMMITS TO NET-ZERO 2050 EMISSIONS TARGET

This letter sets out the electrical equipment and system manufacturers' commitment to the net-zero 2050 target. Represented by BEAMA, the companies signed up to this commitment agree that urgent action is needed in order to reduce the devastating effects of climate change.

We support the Government's work to regulate for this new target and as domestic and international businesses we commit to reducing our own emissions as well as meeting the needs of the supply chain for the transition to net-zero by 2050. Some BEAMA members have already gone a step further and made the commitment to meet net-zero by 2030 for their global operations.

The technologies required to enable decarbonisation of the building stock, transport and energy system are largely available today; however, the challenge is deployment at scale. Government and industry now need to elevate the level of ambition in order to drive the dramatic step change needed to ensure the net-zero target can be met, through long-term policy and regulatory frameworks and market incentives. This includes the delivery of low carbon heating and hot water, energy storage capacity, a robust and flexible energy system with appropriate market mechanisms, and the development of a national electric vehicle charging infrastructure.

There will be a need for significant investment from industry and Government to achieve these goals. As businesses we have invested and will continue to invest in the necessary R&D to bring suitable technologies and skills to market in the UK and phase out carbon-intensive energy products. This level of market transition needs long-term regulatory and market clarity as it is essential to encourage and ensure private investment into the UK. The current policy and regulatory landscape is not delivering this certainty.

We will work with Government and other important stakeholders to ensure detailed strategic plans for the deployment of low carbon technologies can be developed with appropriate regulatory and financial frameworks. Affordable market access for consumers and businesses will be central to getting the regulatory and market incentives right, and the finance industry needs to be a positive and active player.

Here BEAMA, led by our membership, launch a commitment and views on the necessary steps along the journey to 2050, and through our Senior Sector Council will work with Government to deliver on the joint climate targets.

Dr Howard Porter



CEO, BEAMA



Letter signatures



Neil Stewart
CEO, Glen Dimplex Heating & Ventilation



Richard Dick
Group Chairman and CEO, Lucy Group Ltd



Marcello Del Brenna
CEO, Prysmian UK



Carl Ennis
Managing Director, Products & Systems,
Siemens Smart Infrastructure



Mike Hughes
Zone President UK & Ireland
Schneider Electric



David Nicholl
Lead Division Manager
Northern Europe, ABB

Andy Myatt
Divisional Head of Sales and Marketing,
Power Grids UK, ABB



Patrick Caiger-Smith
CEO, Green Energy Options Ltd



Mitra Goodger
Energy Efficiency and Sustainability Manager
Legrand UK and Ireland



Nigel Hughes
Managing Director, Itron Metering
Solutions UK Ltd



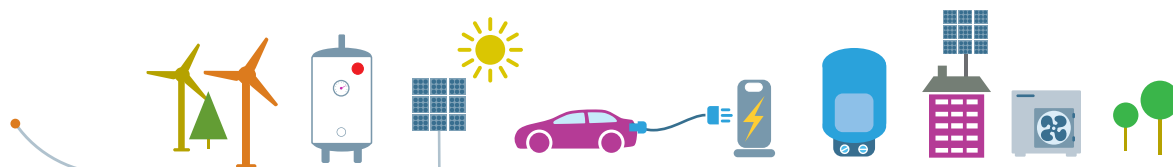
Mike Woodhall
Managing Director, Chameleon



Remi Volpe
Vice President & General Manager,
Drayton by Schneider Electric



Ian Steel
Managing Director, Sicame UK



Letter signatures



Andy Makin
Managing Director, EnviroVent Ltd



Andrew Stimpson
Chairman and CEO, Warmup plc



David Roberts
Managing Director, Nu Heat



Keith Ritchie
Executive Chairman, Titon Holdings



Klaus Jesse
Managing Director UK & Ireland, Vaillant



Stephen Currier
Country Manager UK&I, Eaton



Dr Jonathan Hiscock
Managing Director, Fundamentals Ltd



Neil Beardsmore
Executive Commercial Leader, Grid
Integration Systems – GE Renewable Energy



Ian Snadden
President of Honeywell Electrical Products



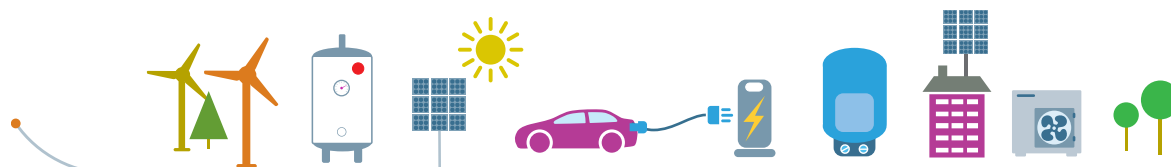
Steven Rooney
Director, Gaia Climate Solutions Ltd



Meirion Richards
Managing Director, BRUSH Transformers
and BRUSH Switchgear



Michael Bowers
Managing Director, Bowers Group
of Companies



INTRODUCTION

BEAMA, led by our members, has set our commitment to deliver on the net-zero by 2050 target. The success of this target is dependent on industry and businesses adapting to stable and effective regulation, ensuring the appropriate investment signals in the market.

As outlined in the Committee on Climate Change Net Zero report, **the target is feasible because the technology is available and understood, but these can only be implemented with strong leadership from Government.** In this report we outline areas where we believe ambition is lacking and there is the need for urgent action – whether that's regulation, policy, standards or market design and incentives.

Technology is a key enabler for our low carbon future, and there is great potential for the UK to be seen as a leader in innovation and new technology markets for smart flexible energy systems. As the first major economy in the world to set this target in law, we need to harness the opportunity for growth in the UK economy from this. UK leadership is a significant theme within the Committee on Climate Change recommendations, and we hope this theme will be continue to be applied to domestic industries. BEAMA sees huge potential for the industry and growth in trade opportunities stemming from the transition to net-zero. In the lead up to COP26 we would like to start work now to gain momentum in the UK market for our transition to net-zero.

The current investment landscape for our sector is however wavering, at a time when we should be seeing a dramatic increase in the deployment of low carbon technologies. In this report we highlight the limitations today for inward investment and export, and how as industry and Government we can tackle this together, and de-risk the energy market for businesses in the UK looking to invest in green, low carbon technologies.

Wedding ourselves to existing regulatory timetables and frameworks for the energy market is limiting progress and restricting investment. Recent action to tweak existing regulations to enable new energy market services has only created further limitations to UK investment, and spending pressures on UK network operators are today not conducive of the level of investment needed in the UK

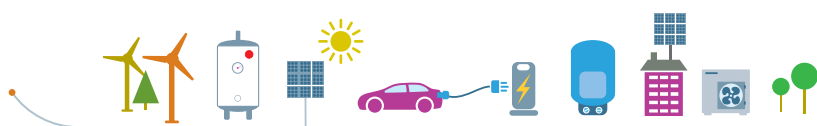
“Reaching net-zero emissions in the UK will require high levels of investment in zero carbon technologies and considerable development and expansion of infrastructure, and innovation to reduce costs and improve the performance of low carbon technologies. Its delivery relies on business being able to invest, which in turn requires that they have confidence that they can earn a reasonable return.

However, a long-term target – even one in legislation – is not sufficient to provide the confidence. It is essential to have clear, strong, effective policies.”

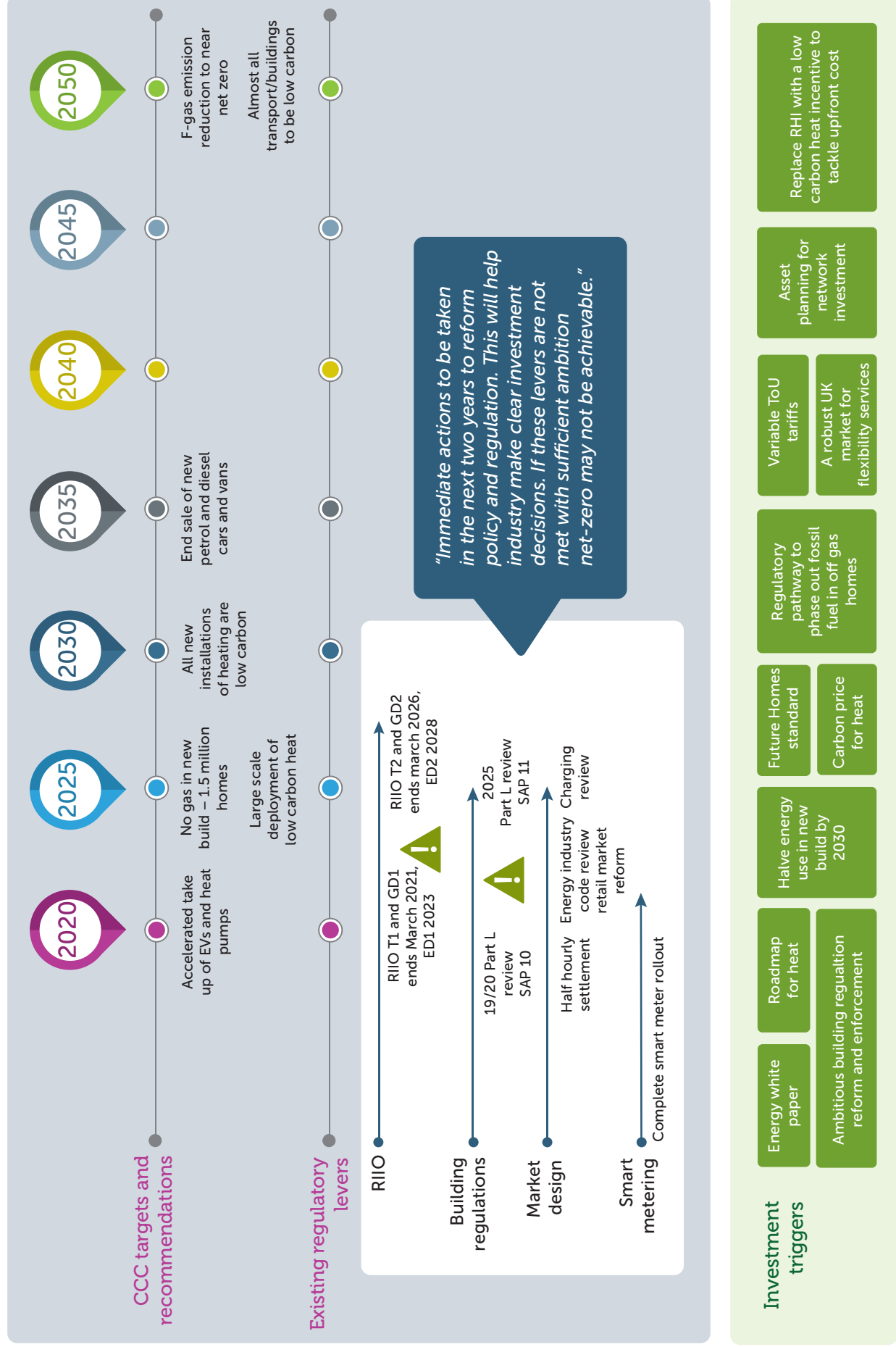
*Committee on Climate Change, 2019 –
Net Zero – The UK's contribution to
stopping global warming*

electricity networks to meet net-zero. Ambition and radical steps to reform regulation and market incentives (pricing) is urgently needed.

We know huge potential exists for decarbonation in the built environment and from transport. In this report we have taken a deep dive into how to reform UK building regulations and market incentives to drive the uptake of low carbon heating and hot water, alongside the required investment in network infrastructure to drive electrification. Our focus on these subjects is driven by the recognition there are immediate near-term actions that must, and can, be taken to facilitate net-zero.



The trajectory to 2050 – critical regulatory and policy timetables and investment triggers





“ Lucy Electric is fully supportive of the aims of the BEAMA Net Zero campaign. Our business and the rest of the industry is working hard to manage the complex mix of new technologies, which is driving the decarbonisation of the UK's electricity supply. But this must be supported by Government action. The industry needs a regulatory framework which reflects the Government's green policy ambitions and enables innovation and the development of the marketplace, if we are to meet the UK's Net Zero Emissions target. ”

John Griffiths, CEO, Lucy Electric

“ Strong, clear long-term policy signals and legislation 'is a key driver for our business – Government need to limit business risk and in doing so, investment will move into the UK market. As of today, the UK Government is not reducing that risk and this does not warrant a significant shift in resources. ”

Mitsubishi Electric UK, Marc Overson

17 million
heat pumps installed and



5 million
homes connected to low
carbon heat networks by
2050¹



£2-3bn
a year of required electricity
network upgrades will be needed
to meet



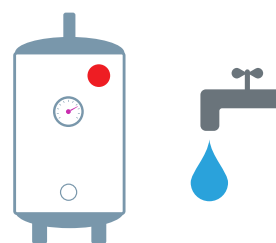
net-zero²



BEAMA estimate a

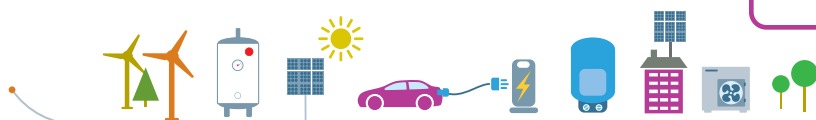
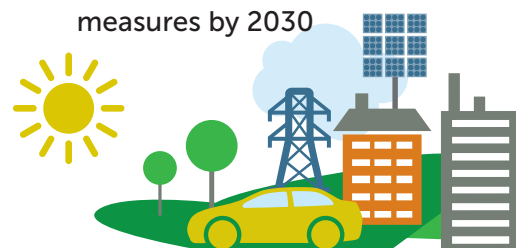
1%

annual decline in the number of hot water
storage tanks in homes across the UK, thus
significantly reducing our capacity
for DSR in the future.



17 million

house retrofits for insulation
measures by 2030



CONCLUSIONS AND RECOMMENDATIONS

Setting the net-zero target in legislation alone is not enough to drive the unprecedented levels of investment needed to ensure we can deliver net-zero by 2050. For BEAMA members to deliver on their commitment to the net-zero target further action is needed now to provide market certainty.

The uncertainty that exists in the market today following recent political change and Brexit should not delay action by Government in ensuring net-zero can be delivered. This is a co-ordination challenge at unprecedented scale, it is a cross-Government, cross-industry, global challenge and one that requires collaboration. Changes to regulation and policy will have knock on effects that need to be understood if we are to ensure the fair and equitable distribution of risk, cost and finance.

Action must be taken now to de-risk investment in the UK energy sector to ensure our transition to net-zero remains commercially viable for business and consumers. The current market is struggling to gain the levels of private investment needed to scale up UK market development of some key technologies (e.g. storage, heat pumps and hot water storage) and action is needed now to make sure we make the most of this opportunity in terms of UK growth and manufacturing, and retain business in the UK.

There are immediate actions that can be taken in the next two years to reform policy and regulation which will help our members make clear investment decisions. It is our firm belief that if we pass these without sufficient ambition the net-zero target may not be met, and the UK supply chain will struggle to deliver the UK requirements for this. Fundamentally what is needed is clear long-term market signals set out in UK law that will provide the confidence to manufacturers that the UK WILL deliver on the net-zero target. Infrastructure planning is necessary to ensure a supply chain can gear up for

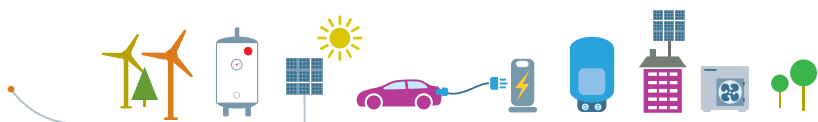
the unprecedented levels of change implied by the target and trajectory to 2050.

We believe there are strong actions that can be taken by Government now to set this trajectory, allowing time to then build a more detailed roadmap in terms of technology development and more local infrastructure planning. These are actions that prevail in the research, and from our discussions with companies, that would set a clear signal to investors and industry of the Government's intentions.

Recommendations

Buildings:

- Complete smart meter rollout, ensuring all UK customers are offered a smart meter.
- Set ambition high within this round of the Part L review³ – setting clear signals for the new build market (phase out high carbon technologies and enable storage capacity), as well as setting higher standards for existing homes in the UK, enabling the uptake of low carbon heating and hot water through SAP. Using the Building Regulations to set out a robust trajectory for energy efficiency improvements in the UK alongside low carbon technology deployment will produce economies of scale for technologies like heat pumps and drive prices down for consumers.
- Set a carbon price for heat and hot water and a long-term trajectory for fuel subsidies.
- Replace RHI with a Capex based incentive for low carbon heating and hot water products.
- Maintain and enhance financial incentives through reduced VAT rates for key low carbon technologies.
- Increase enforcement to prevent non-compliance to the Building Regulations.
- Open data to enable local level energy planning,⁴ policy design and compliance and enforcement.
- Amend the Energy Company Obligation to stop the removal of water cylinders, and where suitable replace with new efficient low carbon water heating technologies.



- Enable green financing options including mortgages and energy as a service models enabling whole house retrofit.
- Engage the installer community in locally driven energy and heat planning – to drive retrofit and further economies of scale in the supply chain.

Market design and services:

- Introduce variable Time of Use Tariffs and a market framework for Demand Side Response. This needs to happen in tandem with smart appliance regulation. Only when there is a clear market mechanism will smart appliances be economically viable in the UK.
- Determine a clear market framework for flexibility services as a matter of urgency. Fudging the current regulatory framework is not enough and brings about gaps and uncertainty for the supply chain therefore limiting progress. Radical change is needed⁵ (e.g. forward and residual charging, retail market reform).
- Open the market to new energy service business models. Energy as a Service we believe presents a viable solution to the Capex issues associated with whole house retrofit and brings added benefits to consumers in terms of cost, comfort and overall experience.
- Target innovation funding at large scale projects to establish real world testing/ trial environments that can better enable commercialisation of new business models. BEAMA will continue to support the work by the Energy Systems Catapult to develop the energy as a service model and living lab opportunities for industry to trial new market propositions.

Network infrastructure and investment:

- Enable consistent spend and investment strategies so that the supply chain can be ready to tackle the asset replacement needs in the UK.
- Consider current pressures on spend by network operators and the impact this may have on our ability to deliver net-zero.
- Invest in networks to enable net-zero. We will increasingly see a shift of heat and transport loads relying on the electricity network.
- Invest proactively in response to 'triggers' or 'just in time' to improve the customer experience and maximise LCT connections.
- Be realistic on reinforcement. Whilst flexibility and capacity releasing technologies and solutions have a key role to play, the fundamental shift in the way we fuel our transport and heat our homes and hot water will need well considered interventions and network upgrades.

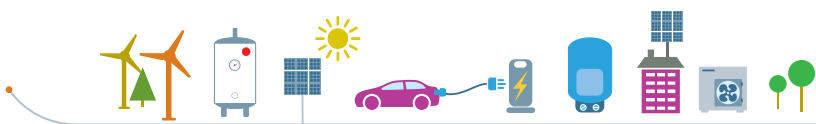
81%

OF UK RESIDENTIAL
PROPERTIES HAVE GAS
CENTRAL HEATING TODAY



- Make network maintenance more predictable, and subject to longer term planning, particularly with increasing electrification of transport and in the longer-term heating
- An improved mechanism is required from network operators to provide visibility of innovation trials that have been completed and will actually move to Business as Usual (BaU).
- Adopt a strategic focus on key energy systems challenges and move away from the trial and demonstration environment into a real-world environment with innovation implemented at scale.
- Improve network efficiency by aligning responsibility for network losses with those who are able to actively reduce them.

"We are very pleased to be supporting this event and the publication of BEAMA's Net Zero by Design Report. The industry is committed to achieving the ambitious net zero by 2050 targets but needs the support of Government with a clear policy framework and pathway to make it happen" Mark Wilkins, Vaillant



To get to net-zero by 2050 the following principles must be met:

1. Create a proportion for the consumer – net-zero must be customer led
2. Guarantee a rate of return – setting a long-term trajectory for subsidies and pricing in the market
3. Incentivise a labor force.

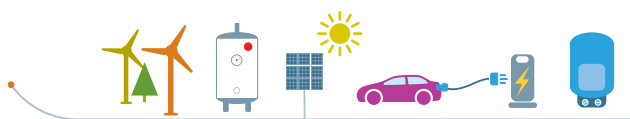
Policy development to meet net-zero will have to include a combination of creating customer demand and choice editing (removing high carbon options from the market, facilitating market take up of smart appliances and low carbon heating and hot water). Enabling new market services will help to ensure the customer proposition can be embedded, we have to think radically to overcome upfront costs consumers would otherwise face in the take up of new low carbon heating and hot water and Energy as a Service models will do just that.

Brexit does pose a risk to industry in the UK, and already we have felt the impact this is having on our sector, but if we ensure alignment with product regulations and certification procedures in the EU we can ensure manufacturers are not unnecessarily burdened with additional costs to sell products into the UK market and trade in the EU.

Net-zero is a huge opportunity for the UK, for the wellbeing of consumers, and for UK manufacturing. This commitment from BEAMA industries and the report outlines our willingness to work with Government and elevate ambition to meet the target for the benefit of UK plc.

“ For manufacturers like Glen Dimplex Heating & Ventilation, energy costs and fuel factors are key to determining future investment decisions. The cost per kWh of energy is largely policy dependent, and with the current disparity in the price of gas Vs electricity it is hard to see how we will incentivise a market for electrification. A trajectory therefore needs to be set by government for these values and factors, so that manufacturers can make confident investment decisions and fulfil their role in delivering the solutions needed to achieve net zero. ”

Neil Stewart, CEO, Glen Dimplex Heating and Ventilation



“ In the UK and across Europe, wind and solar power will dominate electricity generation from the early 2020s due to powerful drivers including statutory requirements to meet the global Paris climate agreement, the falling cost of solar panels and wind turbines, rising carbon prices and the electrification of transport and heating. As a result, electricity supply will also be increasingly variable. To avoid resulting, higher system costs, flexibility must become the new cornerstone of the grid. This will require Governmental policies that provide the regulatory certainty needed to spur private investment in the flexibility technologies and business models needed to smooth out this variability, for example by aligning peaks in demand with peaks in supply of wind and solar power. ”

Stephen Currier, Country Manager UK&I, Eaton

ENDNOTES

- 1 The Committee on Climate Change, 2019, net-zero technical report.
- 2 Imperial College London (2018) – Analysis of Alternative UK Heat Decarbonisation Pathways.
- 3 BEAMA will be publishing our full proposals on all relevant parts of the building regulations latter this autumn.
- 4 Smart Meter Energy Data Public Interest Advisory group – A policy dialogue and work programme led by Centre for Sustainable Energy and Sustainability First- Final report part 1, 2019.
- 5 Redesigning regulation – Powering from the future, 2018 – Laura Sandys, Dr Jeff Hardy, Dr Rhodes, Professor Richard Green (supported by BEAMA).

“ A manufacturer like Glen Dimplex Heating & Ventilation could spend a long time developing a technology that solves a problem within a CAPEX barrier to deployment, only for a policy to change the OPEX requirements. They may have then developed a product not suitable for the market – so the direction of travel as to how policy will affect CAPEX and OPEX is key. Core to our business is the principal that up-front investment can bring long-term benefit, and we are eager that this mindset be applied to the challenge ahead of our industry. There is no quick, cheap fix for climate change, and consideration of the overall lifetime contribution of a technology is necessary if we are to make substantial steps towards addressing it. ”

Neil Stewart, CEO Glen Dimplex Heating and Ventilation



Report Sponsors



Supporting organisations



This work has been lead by the BEAMA Senior Sector Council, a strategy committee within BEAMA providing a steer on our policy work and key industry agendas including net-zero, Brexit, compliance and the overall industrial strategy. The Council members are senior officials from our member companies and key organisations we work with across the industry.

The non-manufacturing companies who are members of the BEAMA Senior Sector Council have also shown their commitment to the net-zero target and have worked closely with BEAMA in the formation of this report. As part of this commitment BEAMA will continue to work closely with these supporting organisations to ensure the requirements for net-zero can be met for our industry.



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