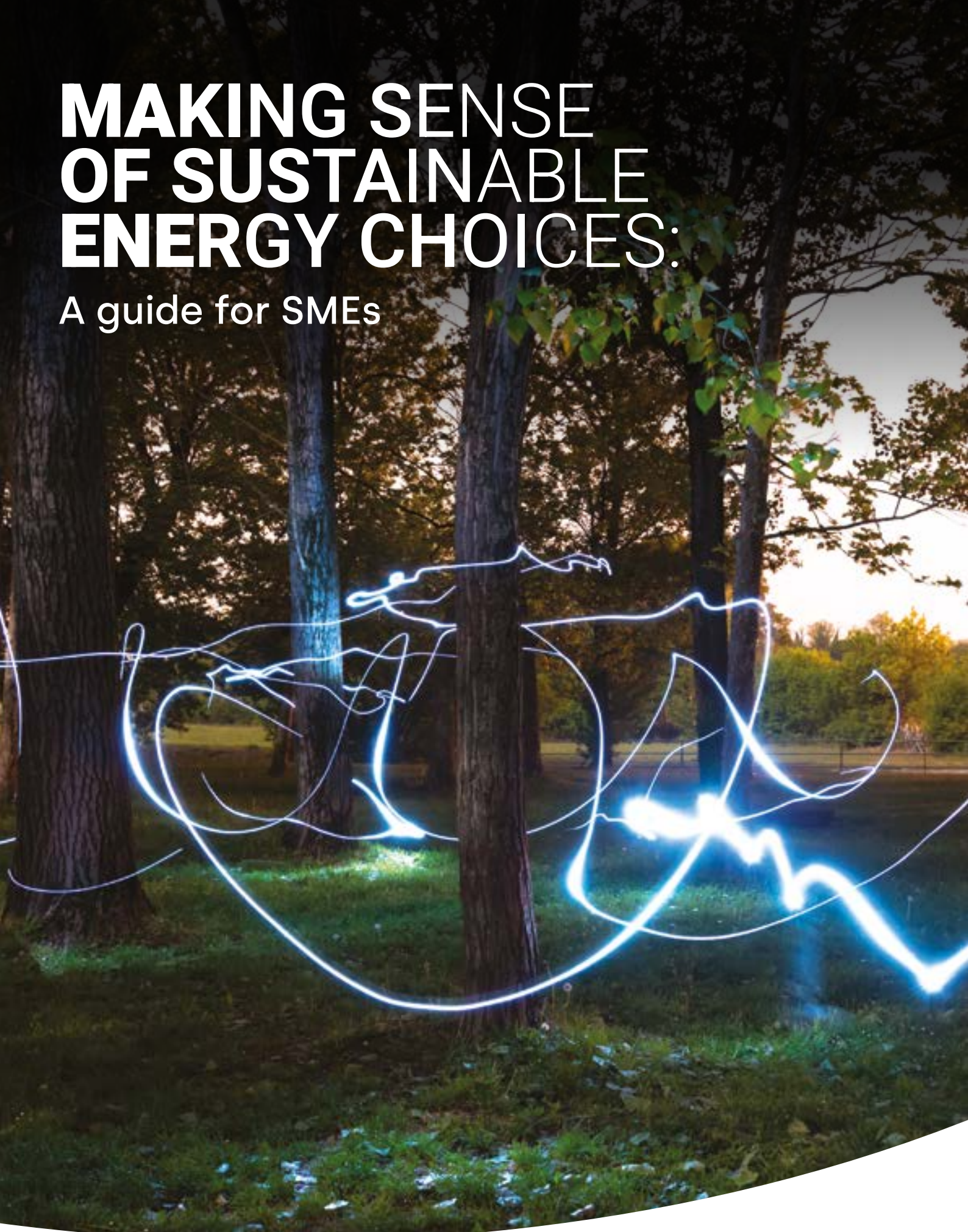


# MAKING SENSE OF SUSTAINABLE ENERGY CHOICES:

A guide for SMEs





## Contents

<b>Section 1:</b>	<b>04</b>
<b>The carbon reduction mandate</b>	
• Every business must play a part	
• Benefits of sustainable energy choices	
<b>Section 2:</b>	<b>07</b>
<b>The technologies driving the transition</b>	
• Business tools	
• Improving accessibility for all businesses	
• New incentives ahead for SMEs	
<b>Section 3:</b>	<b>10</b>
<b>Embracing energy market volatility</b>	
Negative pricing will become a norm	
Negative pricing during 2020	
Say goodbye to your fixed price contract	
<b>Section 4:</b>	<b>12</b>
<b>Introducing Wattstor</b>	
The benefits of the Wattstor EMS	
Taking the next step to sustainability	

## Foreword

Most businesses, regardless of size, will already have some understanding of the ambitious climate change goals we must achieve to reduce our impact on the environment. Some will have already set carbon reduction goals of their own. For larger businesses, the options and incentives for sustainable energy management are expanding rapidly - but for small and medium sized enterprises (SMEs), the road to net zero can seem more difficult to navigate.

In this guide, we aim to dispel the myth that energy management is only for the large and examine how SMEs who embrace sustainable energy choices will stand to benefit. This is about more than responding to political and societal pressure to cut carbon emissions, although that's important too; it's about making positive choices for your business that will help you to boost productivity, improve commercial resilience and reduce energy costs.

So, what's possible? Just a few years ago, only small numbers of SMEs had on-site solar PV. Today, standalone solar PV systems are commonplace on business sites of all sizes. We predict that only three or four years from now, SMEs will not only be routinely generating their own energy on site, they will also have their own battery storage and electric vehicle (EV) charging points as standard, with energy assets connected to each other and to a smart energy management system. In this way, SMEs will be able to easily manage and shift load, respond to signals from the grid and make money from dynamic pricing. Eventually, it will become normal for them to move away from grid dependence by joining 'microgrids' formed across local energy communities.

All too often, SMEs are told to simply fix their energy prices and secure budget certainty at any cost - but this prevents them from creating value for their business from the energy wholesale markets. As we will explore in this report, the opportunities available are going to keep growing and every business can benefit. Flexible energy management doesn't have to be time consuming or complex when the right technology and support is available.

I firmly believe that the opportunities created by our evolving energy infrastructure should be open to everyone. Here at Wattstor, we want to help make that happen. This guide offers a closer look at some of the sustainable energy technologies that are out there, how Wattstor helps to bring them together, and how SMEs can use them to make savings, reduce their carbon footprint and be a part of an exciting energy future.

**Stephan Marty, CEO, Wattstor**



## Section 1

# THE CARBON REDUCTION MANDATE

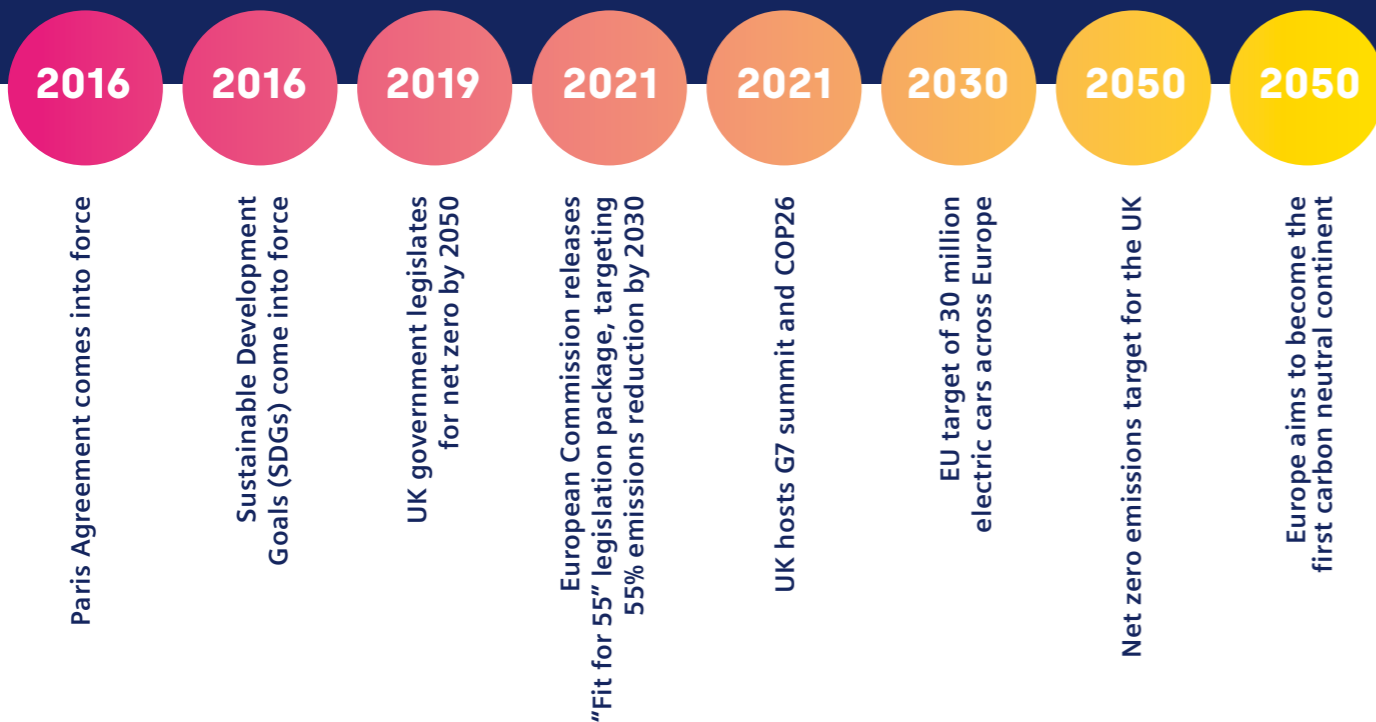
The threat of climate change will affect every person on earth and scientific predictions on the devastating effects of global warming have understandably provoked a global response. Governments around the world have pledged to reduce greenhouse gas (GHG) emissions and invest in low carbon energy.

In June 2019, the UK government became the first to pass a net zero emissions law, requiring the nation to achieve net zero and end its contribution to global warming by 2050. The legislation has given rise to rafts of new statements, policies and regulations, all with one common theme: carbon reduction. And in the world of energy, the race to net zero is already well underway; static, centralised systems that rely heavily on fossil fuels are giving way to flexible, sustainable systems built around renewables.

Energy accounts for two thirds of global greenhouse gas emissions<sup>1</sup>, meaning energy consumers have a crucial role to play in getting our nation to net zero.

# ENERGY

The story so far: Key milestones on the journey to combatting climate change



### Every business must play a part

Renewable energy is a modern-day success story: technologies have rapidly become more efficient and cost effective, and solutions for integrating carbon neutral energy into the grid have advanced quickly. During 2020, 260 gigawatts (GW) of renewable energy capacity were added globally, breaking all previous records. Meanwhile, in April 2020, the UK's electricity grid reached the greenest it's ever been, with zero-carbon power sources making up 80% of the energy mix<sup>2</sup>.

But this is no time to be complacent. As the energy infrastructure transforms, so too must our relationship with it. The intermittent nature of renewable energy sources make grid balancing more complex and energy prices more volatile. It becomes crucial for us all to work together to support grid balance - and for businesses to rethink the way they source and use energy.

The benefits of taking a more proactive, flexible approach to energy management are significant. Businesses that do so are not only helping to ensure that the energy system remains safe, stable and cost effective for us all, they are also putting building blocks in place for their own future stability and commercial success.

### Benefits of sustainable energy choices

#### Commercial and reputational

There are several good commercial reasons to make more sustainable energy choices for your business. Key amongst these is the opportunity to boost your bottom line through cost savings and the creation of new revenue. This is covered in more detail on the box to the right.

However, the true value of taking a 'green' approach to energy management goes much deeper than short term profitability. It includes an enhanced brand perception and the ability to appeal to customers who increasingly care about the ethical and environmental credentials of every business they interact with.

According to a recent survey<sup>3</sup>,

**32% of consumers are 'highly engaged' with adopting a more sustainable lifestyle**

**28% of consumers have stopped buying certain products due to ethical or environmental concerns**

**These numbers are likely to increase in the future: Gen Z are adopting more sustainable behaviours than any other group.**

**For today's consumers, reducing carbon footprint is one of the five most valued brand practices. The others are: waste reduction, sustainable packaging, ethical work practices and respect for human rights.**

<sup>1</sup><https://www.iea.org/topics/climate-change>

<sup>2</sup><https://www.weforum.org/agenda/2021/04/renewables-record-capacity-solar-wind-nuclear/>

<sup>3</sup><https://www2.deloitte.com/uk/en/pages/consumer-business/articles/sustainable-consumer.html>

### Securing new investment

Sustainable practices are also important for businesses seeking to attract new investment. Investors are increasingly using Environmental, Social, and Governance (ESG) criteria to decide on the best place to put their money, thanks to a strong link between sustainability and profitability, as well as lower investment risk.

### Attraction and retention of talent

In 'Future of Work: A journey to 2022'<sup>4</sup> PWC reports that 65% of people want to work for an organisation with a strong social conscience. This is an attitude which looks set to increase as more 'millennials' and 'Gen Zs' enter the workforce, and is already leading to wider company changes; more than a third (36%) of HR professionals are building hiring strategies around their organisations' social and environmental stance, according to the same report.

**77% of businesses say their sustainability strategy is having a positive impact on employee engagement and retention**

**86% report that sustainability practices are having a positive impact on their organisational culture<sup>5</sup>.**

### Supply chain

Large organisations are under increasing pressure to reduce carbon emissions right across their supply chain. Many of those organisations have already made significant reductions to the carbon emissions under their direct control. They now face new regulations concerning their scope 3 emissions: those that come from their supply chain and value chain.

For SMEs it means that successfully securing and retaining contracts, especially with organisations in the public sector, will depend on an ability to demonstrate that efforts are being made to reduce CO2 emissions.

**Up to 90% of an organisation's environmental impact lies in the value chain<sup>6</sup>. Businesses that form a link in that value chain can expect their sustainability efforts to come under increasing scrutiny in the months and years ahead.**

### Resilience and self-sufficiency

Imagine a future in which your business is not only protected from energy marketplace volatility but can also benefit financially from it. In this future, your energy needs can partially or primarily be met by renewable onsite generation, giving you better energy security and affordability, with less chance of an interruption to supply. Imagine a future in which your income is bolstered by the revenue earned from helping to balance the grid, giving you a new way to build investment funds for new equipment or staff. All of this becomes possible when you take a more flexible approach and invest in sustainability.

## Section 2

# THE TECHNOLOGIES DRIVING THE TRANSITION

**The transition to low carbon energy began with investment in renewable energy generation. Its future success depends not only on continued investment in renewable energy, to make it accessible and cost-effective for everyone, it also depends on development of the technologies which support and connect that generation.**

The World Economic Forum (WEF) reports that during the past five years, innovation in low carbon energy (LCE) technology has centred around fuel-switching and energy efficiency technologies, including technologies connected to batteries, hydrogen, smart grids and carbon capture, utilisation and storage (CCUS); all of which

are important enablers of the energy transition<sup>7</sup>. Importantly, the advent of EVs has created the greatest push for new technology, whether for batteries, the vehicles themselves or for the charging infrastructure.

Why is it important to know this? Businesses that have an understanding of energy marketplace trends will have a much better idea of how to prepare their own business for the future. Changes to the energy infrastructure are happening at speed. What technologies could benefit your business? And where should you be investing precious time and resources to make sure you're ready for the changes ahead?



<sup>4</sup><https://pwc.blogs.com/files/future-of-work-report-1.pdf>

<sup>5</sup><https://www.smurfitkappa.com/uk/-/m/files/documents---global/sustainability-survey-smurfit-kappa.pdf?rev=1>

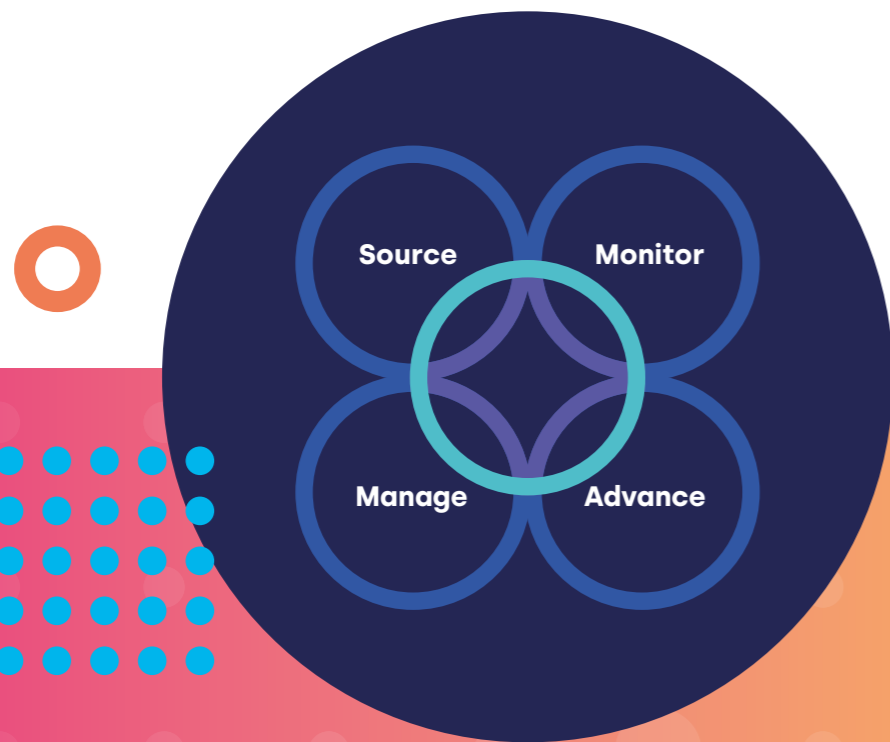
<sup>6</sup><https://www.carbontrust.com/what-we-do/measure-and-evaluate/value-chain-and-supply-chain-sustainability>

<sup>7</sup><https://www.weforum.org/agenda/2021/05/technology-enabling-energy-transition/>

### Business tools

For SMEs just starting out on their sustainable energy journey, it can be helpful to break down the tools and technologies available into categories. This makes it easier to decide which options are best suited to your business, before linking them back together and understanding how they interact.

The categories below highlight some of the sustainability measures SMEs can take. Each can of course be implemented individually, but bringing it all together is how businesses will maximise impact; to make deeper carbon cuts and reap bigger benefits. If you're questioning which tools will work for you, or need help to scope out a project and build a business case, working with an independent partner can often be the best way to start. This will help you understand how to meet your objectives without tying you to any one technology.



#### Source

**Where will your renewable energy come from?**

- Switch to a supply partner that offers renewable electricity and green gas
- Invest in on-site generation eg. solar PV
- Sign up to a renewables PPA - ensure the generation is attached to the Renewable Energy Guarantee of Origin (REGO) to ensure it's a true renewable source

#### Monitor

**Understand consumption better, to reduce waste and cut costs.**

- Use energy monitoring tech to collect and analyse your energy data
- Identify areas where cost and carbon savings can be made
- Implement behaviour changes and measure the difference they make

#### Manage

**Use an energy management system (EMS)\* to optimise energy use.**

- Turn down when wholesale prices are high
- Shift consumption to times when there are more renewables on the grid
- Switch to on-site generation to avoid peak prices
- Export energy to the grid when demand is high

#### Advance

**Make more of the tech that will get your business future ready.**

- Invest in battery storage to improve self-sufficiency
- Automate your participation in electricity markets
- Connect to the electric vehicle charging infrastructure

### Online tools and resources

Want to make a commitment? The European Commission's "Fit for 55" legislation package provides support towards its goal to reduce net greenhouse gas emissions by at least 55% by 2030, and the UK's SME Climate Hub is packed with useful resources.

### Are SMEs missing an opportunity?

Did you know that less than 50% of SMEs in Europe make use of energy monitoring systems, and many just rely on looking at their energy bills for consumption monitoring

### Improving accessibility for all businesses

For far too long, valuable energy management tools have only been accessible or affordable for large firms, while SME businesses have sacrificed the ability to take advantage of energy market opportunity and opted instead for low risk budget certainty through fixed energy contracts. This no longer has to be the case.

Recent advances in data and energy management technology mean it's now easier and more cost-effective for SMEs to access the opportunities that come with flexible, proactive energy management. What's more, in-house energy expertise is no longer a requirement thanks to remote monitoring and intelligent automation capabilities. This is covered in more depth in Section 4.

### UK leads the way in support for SMEs

Alongside this advancement in technology comes important recognition that 'big companies and high emitters' have been the main focus of UK policies and initiatives

to date, and that the nation's millions SMEs risk being left behind during the net zero transition<sup>8</sup>. Bankers for Net Zero aims to change this. The new initiative, launched in July 2021, forms part of the UK's Finance Coalition for COP26. It calls on banks and policy makers to ensure that SMEs are supported in their sustainability efforts and has outlined measures that should be taken. This includes financial incentives to invest in decarbonisation and lower interest rates and taxes for sustainable businesses.

**'Globally, small and medium enterprises represent 99% of enterprises in the economy, around 60% of employment, and around 13% of global total final energy. The IEA has calculated that cost-effective energy efficiency measures could reduce SME energy consumption by 30% (22 exajoules) – more than the total energy consumption of France, Italy and Spain, combined, per year<sup>10</sup>.**

For now, most government sustainability incentives aimed at SMEs are distributed on a local or regional basis. Examples include the West of England Green Business Grant which supports SMEs to improve the energy efficiency of buildings and business operations, and Low Carbon Dorset, which offers free technical support and grant funding for energy efficiency and renewable energy projects. Businesses can find out more by contacting their local authority, speaking to an independent expert or seeking advice from action groups like the Federation for Small Businesses (FSB).

<sup>8</sup><https://smempower.com/wp-content/uploads/2021/01/proceedings-65-00019-v2.pdf>

<sup>9</sup><https://www.cityam.com/smes-at-risk-of-being-forgotten-in-net-zero-transition/>

<sup>10</sup>[https://www.interregeurope.eu/fileadmin/user\\_upload/plp\\_uploads/policy\\_briefs/Championing\\_sustainable\\_energy\\_in\\_SMEs\\_policy\\_brief.pdf](https://www.interregeurope.eu/fileadmin/user_upload/plp_uploads/policy_briefs/Championing_sustainable_energy_in_SMEs_policy_brief.pdf)

\*A sophisticated, flexible EMS can help you make light work of energy management, by making sure all your energy using equipment is optimised on-site. Where flexibility is possible, it can then automate interaction with the energy marketplace. All without ever compromising your operational efficiency.

Section 3

# EMBRACING ENERGY MARKET VOLATILITY

As our reliance on renewables increases, the intermittent nature of these infinite but less controllable energy sources will reshape our relationship with the energy system. For SMEs, energy management has always been focused on efficiency; on reducing consumption to cut costs - but it's time for a new perspective.

As the volatility of the energy marketplace grows and new technologies like EVs put additional strain on the system, there will be many new opportunities to make savings and create value by participating in system balancing. In some cases this will mean that savings will come from using *more* energy rather than less, or from shifting consumption to different times of day.

SMEs have become used to protecting themselves from marketplace volatility, putting budget certainty above all else. Doing so has provided a measure of stability but has often meant paying a higher unit price for energy and missing out on the opportunity to make cost savings. Where on-site generation is available, it has also meant missing out on valuable revenue opportunities and on the chance to play a part in supporting the transition to a greener energy future. Emerging contract structures such as hybrid tariffs, where excess renewable generation can still be sold during peak price periods while retaining some cost certainty, are an increasingly appealing possibility.

So, is it time for more SMEs to embrace marketplace volatility?

**The answer seems to be a resounding yes.**

**Negative pricing will become a norm**

During 2020, Europe saw extended spells of negative energy pricing. A study by European power market data analyst EnAppSys showed that in the nine months to September 2020, European countries on average saw negative 'day ahead' prices almost 1% of the time (0.8% on average). During these periods, the markets could not use as much power as they generated. With supply required to match demand, the wholesale cost of electricity increasingly fell below zero - meaning that consumers were paid to use electricity.

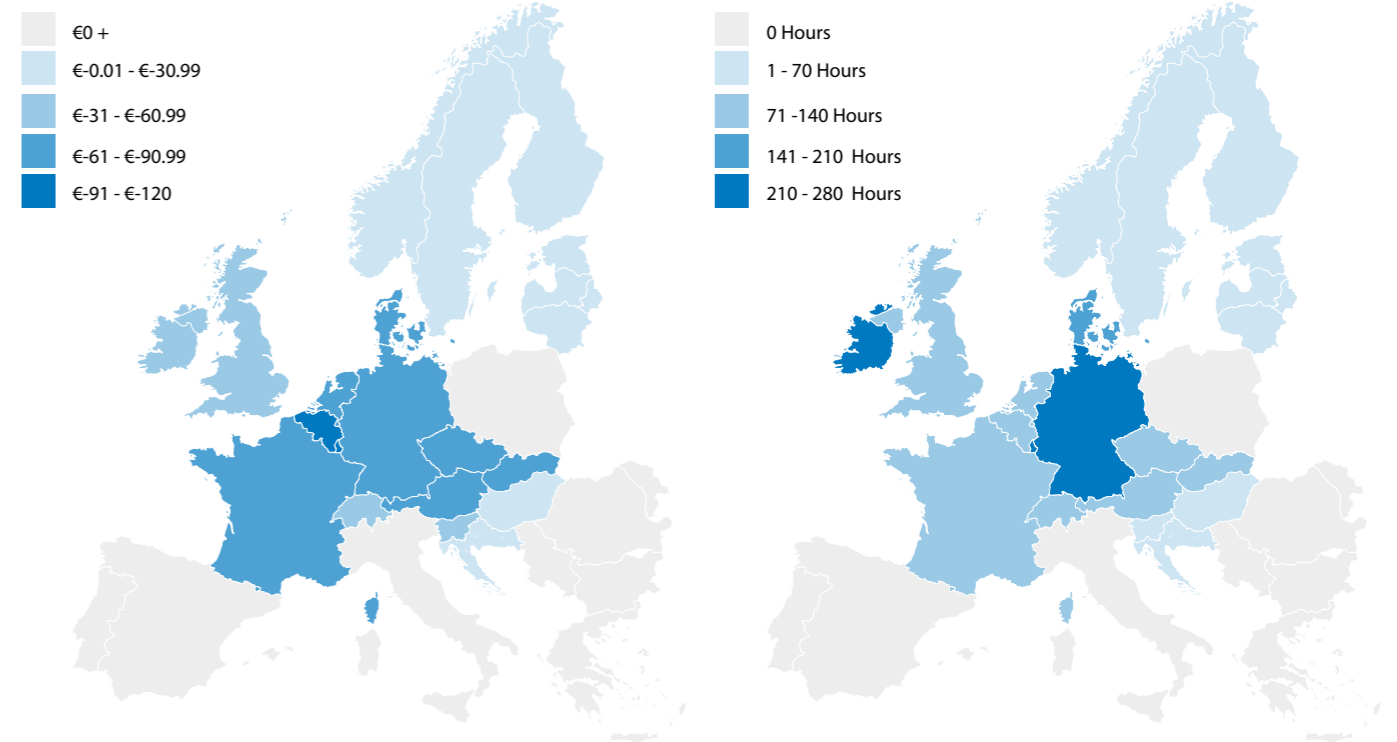
As the amount of renewables on the grid increases, we can expect more volatility and more periods of negative pricing. By the 2030s, it is expected that energy pricing will be at zero or negative for around a third of the time. Businesses on fixed tariffs will not feel the benefit of this, while those on a dynamic or hybridised dynamic tariff and able to shift consumption to times when the system is oversupplied will be able to create business value through their energy management. And it's not just cost savings that are available during these times: moving consumption to times when there is more renewable capacity on the grid also lowers the carbon intensity of your energy supply.



**Negative pricing during 2020**

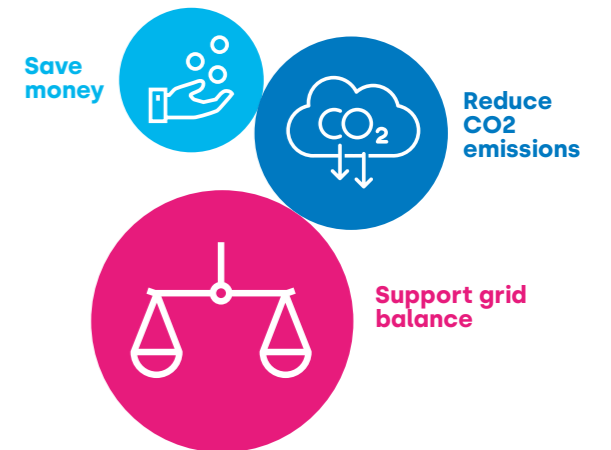
Energy markets with high wind generation saw most incidents of negative pricing during 2020. In Ireland, more than a third (36%) of energy demand was met by wind, leading to negative prices 4.2% of the time.

During December 2020, UK wind generation triggered negative prices for a record length of time, from roughly 10:45pm on 7th December until 12:45pm on 8th December. Consumers on dynamic tariffs were alerted to turn up consumption - an action with the power to benefit themselves, the grid and the planet.



**Say hello to dynamic tariffs**

With a dynamic tariff, some of the wholesale price volatility is passed through to the consumer. Combined with smart, dynamic energy management, this creates the opportunity for businesses to:



**Finding the balance for your business**

The leap from a fixed to a fully fledged dynamic tariff can feel like a big step.

That's where hybrid tariffs come in. They allow businesses to benefit from the stability of a fixed tariff, while also allowing them to sell back their excess generated electricity at times of peak pricing. So they can take advantage of price volatility, whilst retaining some much-needed cost certainty.

## Section 4

# INTRODUCING WATTSTOR

SMEs face a number of obstacles to implementing sustainable energy measures. Significant obstacles include the need to deliver return on investment (ROI) over shorter timescales and the need to fund projects in a way that fits with their investment cycles. Wattstor makes net zero affordable and accessible to SMEs.

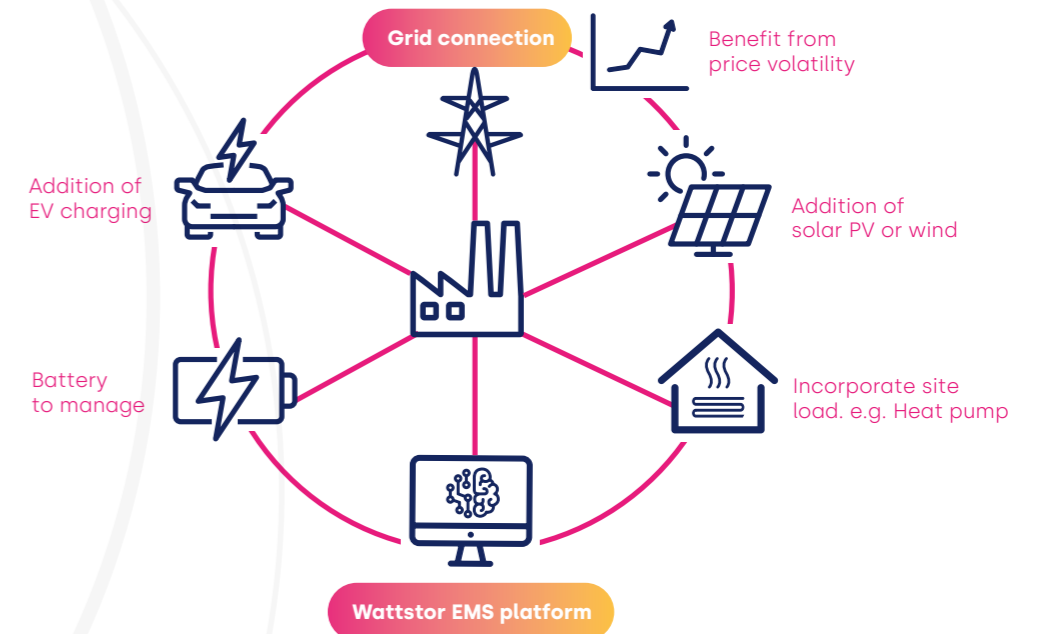
We work with technology developers, renewables installers electricity suppliers and energy service companies to help SMEs overcome these obstacles; to make technology more accessible and transparent and provide practical support for businesses who might not have energy expertise in house.

Our carefully chosen channel partners help SMEs access the renewable generation and battery storage solutions that best suit their business. Behind the scenes, we bring together all the strands of consumption, generation and storage, optimising everything through our intelligent energy management system. This model means fewer suppliers to manage for a SME, whilst opening up the opportunity to harness a real depth of expertise, capability and technology.

Once all onsite assets are combined and optimised through the Wattstor EMS, the residual flexibility from the entire site can 'go to market'. Wholesale marketplace interaction is continually monitored, using AI and machine learning to make sure businesses get maximum benefit from providing valuable support to the grid.

## THE WATTSTOR VISION

To empower every business to take part in the green energy transition and financially benefit from it.



### The benefits of the Wattstor EMS

#### Cut costs and carbon

Wattstor can empower you to control multiple assets and enable deeper decarbonisation by moving your entire load away from the grid during high cost and high carbon intensity times.

#### Reduce consumption

Wattstor will help you reduce energy consumption by making sure all generation is used, not wasted. The EMS can provide you with data that clearly shows what you are using and when, often to an appliance level, enabling you to modify behaviour and make additional cost and carbon savings.

#### Get the answers you need

We use independent software to validate choices on system size for battery storage or generation projects, providing accurate predictions on ROI and CO2 savings to help you build a sound business case for investment.

#### Connect everything easily

Our open interface EMS can connect all of your energy using assets and building management systems, with no need for new data infrastructure or metering systems.

#### Make more of the wholesale market

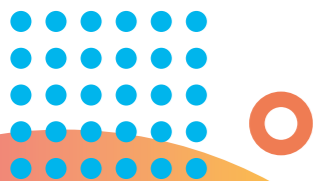
Our unique EMS can schedule on-site generation, storage and consumption in response to market signals using sophisticated machine learning algorithms, so businesses can take advantage of near real-time fluctuations in power pricing.

In addition to this, Wattstor delivers a unique hybrid approach to price volatility. Essentially, SMEs can have a fixed tariff whilst benefitting from price volatility at the same time.

#### Any questions?

From 'how many assets can I connect?' to 'will your system integrate with my current EMS?' and 'how secure is my data?', we know you'll have questions - and we're happy to answer them all.

#### Get in touch



# TAKING THE NEXT STEP TO SUSTAINABILITY

As we head towards net zero, there is an increasing responsibility for each of us to think about how and when we are using energy. But with this responsibility comes a valuable and exciting opportunity - and it's important that SMEs don't miss out.

For many SME businesses, energy is both a vital resource and a significant overhead. In the future, the way you manage energy will increasingly come under scrutiny from customers, investors, employees and supply chain partners. Your environmental and ethical credentials could be central to your ongoing commercial success.

So isn't it time small and medium sized businesses redirected some of their entrepreneurial spirit and took a more innovative approach to energy management? Starting to make the change now will not only make you a leader among your peers and help you to improve your brand reputation, it will also put you in the best possible position to take advantage of new opportunities and incentives as they arise.





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