



Powering Change Report

A Practical Guide to Decarbonising the UK and Ireland

Laying the foundations for a Net-Zero future

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Methodology

Our Powering Change report is based on the input of 850 key business decision-makers from across the UK and Ireland in September 2021 (the survey conducted by 3Gem), encompassing both business and consumer attitudes towards the race to net-zero sustainability targets.

Out of all respondents, 504 were from large UK and Irish businesses operating in industry, infrastructure (energy, network operators), commercial and residential buildings and data centres who were interviewed by research firm 3Gem in September 2021.

In addition, the input from a nationally representative consumer survey of 2,000 UK adults was conducted by Opinium on behalf of Schneider Electric, with polling taking place in July 2021.



FOREWORD

**Kelly Becker, Zone President UK&I
Schneider Electric.**

Wishful thinking: the biggest barrier to accelerating climate action

We have eight years to halt the effects of global warming. Forget 2040, 2050 and beyond. 2030 is the date that matters in our fight against climate change. To have the best chance of limiting temperature rises to 1.5°C, we must halve global emissions by 2030.

2021 has been a sobering year for anyone concerned about climate change. We've witnessed record temperatures being set in Russia, the 'Heat Dome' in the Pacific Northwest, the devastating wildfires in Greece, and the catastrophic flooding in China, Central Europe and following Hurricane Ida in the US.

In the run-up to COP26 in Glasgow in November, the increasing frequency of these extreme weather events and the publication of several reports on the climate emergency has injected a heightened sense of urgency into discussions and crystallised what we have known for decades: human activity is changing our planet.

In August, the Sixth Assessment Report of the UN Intergovernmental Panel on Climate Change (IPCC)¹ predicted that average global temperatures would potentially breach the 1.5°C limit set in the 2015 Paris Climate Agreement ten years sooner than expected.

Similarly, a report in April from the International Energy Agency (IEA) - the Global Energy Review 2021² - forewarns that global energy-related CO₂ emissions will rise by 1.5 billion tonnes in 2021, taking the total to 33 billion tonnes. Reversing the decline caused by the Covid-19 pandemic, this will primarily be driven by a strong rebound in demand for fossil fuels in electricity generation.

It's impossible to ignore the fact that we are looking down the barrel of a crisis of our own making. Unless we do something about it, climate change will continue to intensify - with devastating consequences.

The power is in our hands

Among all this bad news, however, there is more than a glimmer of hope. Yes, there's a lot to be done to halt the worst effect of global warming but let's be clear: it's absolutely achievable and there's a great deal of willingness to get there. According to this year's Schneider Electric sustainability research³, the majority of British and Irish businesses say they have set targets to reduce emissions. Business leaders believe they are on track to achieve their goals and most respondents think Britain will successfully reach key net-zero milestones.

There has never been more significant support and desire to tackle the climate crisis from policymakers, businesses and consumers. And, we already have the technology and solutions to make real inroads into creating a net-zero future.

In the fight against climate change, some progress has already been made. Awareness is high, with around three quarters (75%) of UK respondents to recent consumer research⁴ now concerned about the threat of carbon emissions to the planet.

¹ <https://www.ipcc.ch/report/ar6/wg1/>

² <https://www.iea.org/reports/global-energy-review-2021>

³ A survey of 850 key business decision-makers across the UK & Ireland by 3Gem on behalf of Schneider Electric in September 2021

⁴ Survey of 2,000 UK adults by conducted by Opinium on behalf of Schneider Electric in July 2021



The cost of clean, renewable energy is becoming cheaper and policymakers, including those in the UK and Ireland, are strengthening their climate policies and commitments on the road to achieving net-zero by 2050.

Businesses are also making more ambitious and accelerated commitments to reaching net-zero targets, showing signs of business optimism and that a net-zero future – the only sustainable future – is within reach. We surveyed 850 key decision-makers from across a broad spectrum of UK and Ireland businesses just after the IPCC report was published. We found that 88.0% of respondents were aware of having some kind of carbon reduction target within their business, including 41.0% who have a target to be carbon neutral before 2030. When asked how confident they were about their carbon reduction goals being met, over half (62.0%) rated their confidence as eight out of 10 or higher.⁵

However, while the optimistic outlook doesn't mirror the current predictions from many experts and calls for more significant action, if we scratch beneath the surface, it has uncovered perhaps the biggest barrier we face in the fight against climate change: we've underestimated the size of the problem.

The findings uncovered a lack of understanding about the size and scale of emissions British and Irish businesses and organisations are responsible for addressing. There is a potential gulf between what businesses *think* needs to be done versus what is actually needed to reach net-zero goals.

And as much as the commitment of so many UK and Ireland businesses creating a sustainable future is a cause for celebration, targets need to be bolder, and there needs to be greater accountability among leaders to meet them. Or we run the risk of paying lip service to the greatest challenge facing our planet.



Powering Change

Looking ahead at the “must-win” battles, it is still possible to halt the worst effects of climate change by working collectively. But we need to act now.

How do we ensure support and ambition translates to accountable action? Here lies our biggest opportunity for change. Education, greater understanding of the scale of the challenge, and the removal of barriers to investment in emerging technologies can make a huge difference. Attitudes towards the perceived short-term cost of reducing emissions can be shifted through support and taking a long-term view.

In previous years, we have talked a lot about the need to rethink our relationship with energy, but now, the time is here for inspiring tangible change.

Clean energy is undoubtedly part of the solution, but this needs to be delivered hand in hand whilst eliminating energy waste. Clean energy and energy efficiency are things we have today, alongside the existing technology that we require.

Despite this, there is still much talk of promising new technologies such as direct air capture to remove CO₂ gas directly from the atmosphere or hydrogen as a potential solution for domestic heating.

We cannot hope to reach net-zero by 2050 without putting the wheels in motion starting now. We can't wait for expensive new technologies to be invented or scaled even for the next IPCC report, which will look at how best to mitigate emissions, to take advantage of what we can do immediately to buy ourselves more time.

Most notably, this can be done by harnessing the power of digital tools, energy automation and analytics. Digital solutions powered by clean and green electricity offer us a way to make this invisible energy loss and waste visible and make our homes, buildings, cities, transportation and industry more sustainable.



80% of CO₂ emissions are linked to the production and inefficient consumption of energy.⁶ You must only look at the light pollution across cities at night-time to see a fraction of the energy waste we need to address. Due to the digital transformation over the past decade, it's now possible to identify, measure and grasp opportunities to reduce emissions. The experience of the pandemic has shown us that we can be innovative and collaborative at speed. The solutions already exist. They are proven and can be deployed quickly to help us decarbonise homes, businesses and broader supply chains at scale.

It starts - and continues - here

Earlier this year, I was proud to see Schneider Electric ranked as the World's Most Sustainable Company by the 2021 Corporate Knights Global 100⁷ Index, a testament to 15 years of work as a global leader in energy management and automation and a corporate pioneer and champion of circular and sustainable industry. This is not an accolade we wear lightly. Whether it's ferry terminals on Scottish islands or Tottenham Hotspur Football Club, we work hard to advocate and support our partners and customers through energy saving, electrification, and decarbonisation.

We have delivered over 30% energy savings within our global business since our Schneider Energy Action energy efficiency programme started ten years ago. Renewable energy sources power 80% of Schneider Electric's global and 96% of its UK and Ireland operations, and we have set an ambitious target to become net-zero in our operational emissions by 2030, carbon neutral in our end-to-end footprint by 2040, and have a net-zero supply chain by 2050. And we work with our customers to do this every day.

We know it's sometimes daunting to know where to start, but we are indeed in this together – and there is no other choice. Therefore, this report focuses on the practicalities involved in decarbonising our homes, buildings, factories and the energy grid itself across the UK and Ireland in the next decade. We aim to bridge the gap in understanding by shedding light on the challenges and opportunities ahead and share our expert knowledge and insight on specific solutions to specific problems. To help us all go further, faster and achieve more as we accelerate our transition to a sustainable future. To Power Change.

6 <https://perspectives.se.com/ess-perspectives-2021-2030-scenario-white-paper>

7 <https://www.se.com/ww/en/about-us/newsroom/news/press-releases/world%E2%80%99s-most-sustainable-corporation-2021-60097a67785e6528940953a4>



Where to start?

Three-quarters of UK respondents (75.8%)⁸ and just under two thirds (60.0%)⁸ of Irish executives surveyed said their business has already mapped at least its scope 1 carbon footprint. Despite this finding, the question we get asked most frequently at Schneider is 'where do I start?'

Before you can calculate your carbon footprint, you need an accurate view of your energy estate.

88.0%

of business leaders surveyed believe their organisation has an accurate view or map of their energy estate. The experience of Schneider teams on the ground suggests this may not be the case.

Instead of our usual advice, 'start by mapping your estate', a new approach may be required.

Question what you've been told. Establish the rigour in your sustainability processes and data in the same way you would interrogate your financials. Only then can you agree on the emissions scopes you plan to tackle (**ideally scopes 1, 2 & 3**), establish a baseline year, and collect the data you need to calculate your footprint.

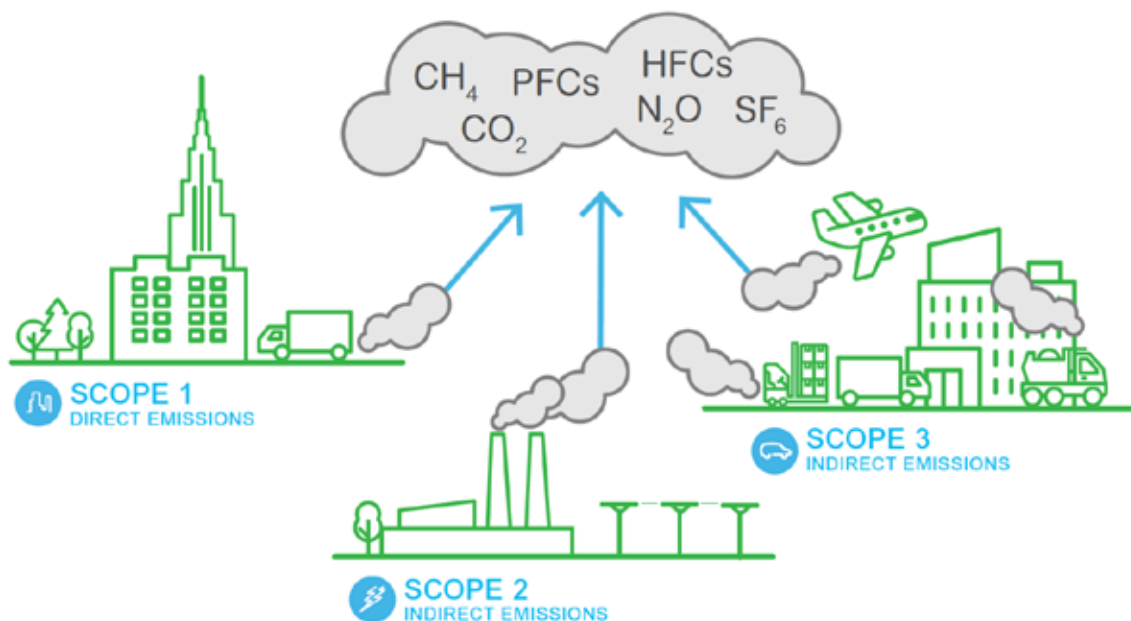
Calculating the size of a business's scope 1 emissions (a business is directly responsible for) and scope 2 emissions (indirect emissions generated via purchased electricity, steam, heat, and/or cooling) is a more straightforward exercise than tackling scope 3 emissions. Scope 3 emissions are the indirect emissions generated by a company's upstream and downstream value chain, including the emissions created by use of a company's products, end-of-life product emissions, the transportation of goods, business travel and employee commute, and waste management.

Many businesses lack the expertise or technology to accurately map their scope 3 footprint, and access to external consultants⁹ may not be attainable. This is where industry partnerships can play a bigger role to ensure no organisation navigates the sustainability challenges alone. Only when the footprint has been calculated can you develop a plan to tackle emissions and set goals and decarbonisation commitments.

Our recommendation is to start with the easiest to address areas that will have the biggest impact soonest and these areas will be available further along in the report – to enable businesses to make decisions and take action – starting now.

You also need to develop a system to measure and track sustainable progress regularly.

Lastly, it is essential to recognise that sustainability is a journey that starts with a first step.



BASIC



Energy Efficiency

- Alignment with existing efficiency regulations across all facilities
- Regular energy audit(s) and compliance
- Track energy consumption on-site level on at least monthly basis



Decarbonisation

- Annual tracking and disclosure and total greenhouse gas (GHG) footprint in alignment with GHG Protocol
- Emissions reduction aspiration based on absolute (total) or intensity (by product) basis



Renewable Energy Procurement

- Procurement of verified high-quality green electricity and/or Energy Attribute Certificates (EACs) via bundled, unbundled or green tariff purchase for 100% of Scope 2 emissions

BETTER



Energy Efficiency

- Advanced energy monitoring tracking consumption with submetering
- Development of centralised efficiency programme and budget
- Specific targeted reductions in energy consumption by facility or process
- Replacement of energy-intensive equipment with efficient technology
- Disclosure of efforts and results via reporting mechanisms like CDP



Decarbonisation

- Publicly announced, short-term carbon neutrality aspiration (may include use of carbon offsets)
- Annual reporting on both location- and market-based emissions
- Long-term, science aligned reduction target for scope 1 and scope 2 emissions
- Scope 3 emissions assessment with identified material categories



Renewable Energy Procurement

- Public commitment to 100% renewable energy
- Procurement of renewable power from onsite and/or offsite solutions (such as power purchase agreements) with direct retirement of associated EACs for 100% of scope 2 emissions
- Procurement of verified carbon offsets for 100% of scope 1 emissions

BEST



Energy Efficiency

- Active energy efficiency optimisation based on real-time energy monitoring
- Public commitment to and achievement of energy efficiency standards, like EP100 and/or ISO 50001
- Move from consumer to prosumer with innovative on-site solutions integrating EV, microgrid, renewable heat, etc.
- Extension and enablement of efficient processes, methodologies and technologies into value chain



Decarbonisation

- Publicly announced, long-term net-zero aspiration (without use of carbon offsets)
- Approved SBT and committed to science-based reduction target for scope 1/scope 2/ scope 3 emissions in line with 1.5 °C (net-zero pathway)
- Actively engaging supply and value chain on decarbonisation
- Develop low-carbon products and services, redefine business models



Renewable Energy Procurement

- Achieve 100% renewable energy
- Use electrification, clean technologies, and/or fuel switching to reduce scope 1 emissions and eliminate use of carbon offsets
- Engage value chain in carbon reductions and renewable energy procurement efforts



Breaking down the barriers to Net-Zero

There is no shortage of ambition to achieving net-zero. There is a high level of optimism amongst UK and Ireland business leaders that their own sustainability goals and those set by their respective governments will be met.

91.5%

Decarbonisation is a priority for 91.5% of UK and Ireland businesses¹⁰

Top 3 priority

Reducing carbon footprint is a top 3 priority this year (up from a top five priority in 2019) with a 62% likelihood of meeting their sustainability targets.

10 A survey of 850 key business decision-makers across the UK & Ireland by 3Gem on behalf of Schneider Electric in September 2021

However, a sizeable gap exists between current commitments to decarbonise (3GT CO₂) and the level of decarbonisation needed. The Schneider Electric™ Sustainability Research Institute has calculated a global shortfall of between 7-12GT carbon dioxide equivalent (CO₂ in terms of the volume of reductions currently pledged and the volume required (10-15GT CO₂) by 2030 to keep us on track to limit global warming. Let's consider the hurdles we'll need to overcome to unlock bigger commitments and accelerate action.

1. Quantifying the challenge

This report has found that almost **three quarters (73.2%)¹¹ of UK and Ireland businesses have not yet calculated their entire carbon footprint inclusive of all three emission scopes**. This means the majority of organisations do not have a complete picture of the scale of change they need to implement.

Underestimation of both the scale of the challenge and the real carbon impact businesses are responsible for is currently the biggest barrier to achieving British and Irish net-zero goals.

2. Climate change mitigation as a purpose

Despite nine out of 10 UK and Ireland businesses stating decarbonisation is a priority, **less than a fifth (17.1%) of UK and Ireland businesses say their own ESG goals are aligned** with urgently addressing climate change or combatting loss of biodiversity (**19.5% of businesses**). Wellbeing is now the number one ESG goal for businesses. Increasingly, this is linked to people wanting careers and professional lives that have a meaningful purpose and putting climate change of the heart of this can go hand in hand with this.*



There are easy wins that more UK and Ireland businesses could be taking advantage of. As it stands, just a **third (32.8%)¹² of these businesses have switched to a renewable energy supplier**, so far. **Two out of five (40.5%) don't have any plans to switch for at least three years**. Similarly, there are opportunities to deploy more technology that has the potential to pay for itself and reduce emissions. Converting the number of respondents (**47.6%)¹³ who said business has no plans to invest in energy-efficient equipment (such as LED lights) for at least three years**, would be simple way to make a huge difference.

11, 12, 13 A survey of 850 key business decision-makers across the UK & Ireland by 3Gem on behalf of Schneider Electric in September 2021
* See notes and methodology - page 44

Breaking down the barriers to Net-Zero

3. Managing wider risk and uncertainty

Unsurprisingly, Covid has delayed sustainability plans for almost half (44.6%)¹⁴ of UK and Ireland businesses this year. But it is not just the rapidly changing operating environment enforced by the pandemic that is creating uncertainty. A quarter of businesses **(26.2%)¹⁵** say they are waiting for formal guidance or government legislation to implement plans. **And around a fifth (21.9%) of businesses do not want** to back the wrong technology when investing in sustainability measures.

4. Business Culture: Empowering and inspiring changemakers

There is a lack of accountability for sustainability goals from the top of UK and Ireland organisations to the bottom. A little over **a third of UK and Ireland businesses (36.29%)¹⁶** have a regular sustainability measurement and reporting cycle in place. **Two in five CEOs (38.8%)** do not believe they will be held accountable if carbon reduction goals aren't met. And just **one in 10 businesses (10.1%)¹⁷** thinks everyone in their organisation is responsible for the sustainability effort. **A fifth (19.3%) of business leaders** admit that workplace apathy is a potential barrier for positive change.

At Schneider, we know from our own experience that instilling a culture of ownership for sustainability across the length and breadth of the organisation is key to delivering meaningful change. Without it, policies are less likely to be followed or implemented, or sustained over time. **And opportunities to identify new areas for improvement are more likely to be missed.**

5. Funding the journey

Many UK and Ireland businesses (60.7%)¹⁸ have already successfully taken advantage of government funding or incentives to reduce their footprint. However, **more than a third (35.4%)¹⁹** say they are unaware of available funding or incentives for which they could be eligible.



There is also a lag between current funding criteria and scoring models in operation and newer sustainability innovations. **Almost a fifth (18.2%)²⁰** of organisations that couldn't access government funding stated that it was because their preferred solution did not fit current criteria.

The speed of innovation is challenging for government bodies, but there is a need to enable a model which is not weighted towards potentially older or outdated technology.

Finally, anecdotal evidence suggests that whilst business leaders may have prioritised decarbonisation, many procurement teams lack knowledge and understanding of sustainability. There is a level of frustration when winning bids are procured based on criteria that won't deliver against broader climate goals.

6. Accessing the needed skills

Nearly a quarter of business leaders (23.8%) cited failure to find a trusted partner for sustainability and efficiency. And more than **one in four executives (26.7%) admitted to a lack of knowledge and expertise to drive sustainable change.** Greater investment in skills at every level is going to be required to deliver on the UK and Ireland's net-zero goals. From equipping engineers with the capabilities to install and maintain low or zero emission products to the sustainability managers and directors who can help create the roadmaps for organisations to reach their goals, to the partners with the ability to advise and deliver tailored solutions. We can deliver the tools and technology to combat climate change – but if the necessary skills to make informed decisions and utilise these tools effectively are lacking within businesses, leaders must lean on experts to pave the way and help deploy sustainable strategies.



Catalysts to empower change

Smart Homes

The arrival of EVs could double residential energy usage, potentially becoming one of the biggest changes since electricity. Add in electric heating and cooking and the residential market will be severely disrupted. The time to act is now. By 2050, households are expected to be the single largest consumer of electricity and the biggest contributor of CO₂ emissions, with 34% generated by homes.



Homes are already responsible for roughly one-fifth of all emissions today.²¹ We know consumers want to make changes and we need to empower them to do it by putting them in the driver's seat when it comes to sustainable living.

²¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/972583/2020_Provisional_emissions_statistics_report.pdf

The good news is **half (50.0%) of Brits think it is important to make their home net-zero** in their lifetime. The majority (**84.0%**) are also concerned about the rapidly rising energy bills should global **temperatures increase by more than 1.5°C.**²²

There are 30.1 million homes across the UK and Ireland today. We're going to have to retrofit **26.5 million** of them to meet targets. **Only 41%²³ of UK homes** today are rated at C or above although most new builds have to be C or above. In Ireland, 500,000 homes – **around a third of the total housing stock** – need to be refitted by **2030 under the Climate Action Plan.** But ominously, our survey found that organisations responsible for building and managing residential homes are currently the least likely to be prioritising carbon footprint reduction.

Our progress is too slow. **Today, around 12% of homes globally are smart.**²⁴ But smart doesn't make them sustainable. While the number of smart devices in our homes has dramatically increased, our wellbeing and that of the planet has not.

Brits are **50.0% more likely to own a voice assistant (36.0% of respondents)** than a smart thermostat (**a quarter of the population**) with just **51.0%** viewing smart controls in the home as important. Yet digital is essential to achieving a smart, net-zero home.

It doesn't help that the public is a little sceptical when it comes to the feasibility of net-zero targets. **Only 38.0% believe the goal of no new gas boilers installed from 2025** is achievable, and just 30.0% think the goal of having half of existing buildings **becoming net-zero by 2040 is realistic.**

This is in stark contrast with confidence levels of the UK and Ireland business leaders, **67.9%** of whom believe the goal of **installing no new gas boilers from 2025 is achievable. 70.2% of UK and Ireland businesses** are confident that half of our buildings will be **net-zero by 2040.**²⁵



²² According to a representative UK consumer survey of 2,000 individuals conducted by Opinion on behalf of Schneider Electric in July 2021.

²³ Statista

²⁴ <https://www.thisismoney.co.uk/money/mortgageshome/article-9648431/Reaching-energy-efficiency-rating-C-impossible-1-7-million-homes-owners-face-penalties.html>

²⁵ According to a survey of 650 business leaders in the UK & Ireland conducted by 3Gem on behalf of Schneider Electric in September 2021.

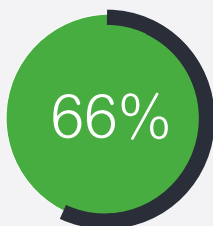
Catalysts to empower change

In the meantime, governments are striving to ensure the reliability of energy supplies and a cleaner energy mix. Homebuilders are looking for ways to make smart and sustainable homes a key differentiator, while businesses strive to equip consumers with easy to use and intuitive solutions to spearhead climate change action from their living rooms.

Investment in smart, sustainable homes yields benefits to the homebuilder and manager. What's more, we typically see a **30% reduction in energy usage and a similar reduction in operational costs**²⁶ as a direct result of smart building technologies. On average, green buildings are worth **7% more**²⁷ than traditional buildings.

Better performing buildings can attract an increased sale value of up to **+14% in the residential sector**. The corresponding increases in rental values are **+1.4% to +5.2% for residential properties**.²⁸ **Around 40% of people expect** sustainability technology to be embedded in the housing infrastructure for new builds, with **66%** of Brits convinced sustainability is important when making home improvements.

The good news is that green tech and the finance industry are starting to merge as a new line for investment. Progressive ways of making sustainable homes more attractive and affordable such as green mortgages, are emerging.



of Brits convinced sustainability is important when making home improvements.

²⁶ <https://www.se.com/ww/en/work/campaign/life-is-on/case-study/#!/jsp>

²⁷ <https://www.bdcnetwork.com/blog/green-buildings-dont-have-cost-more>

²⁸ https://ec.europa.eu/energy/sites/ener/files/documents/final_report_v4_final.pdf



Call to action: More emphasis and incentives need to be put on retrofitting the existing building stock – helping save energy, alleviate fuel poverty, make households more sustainable. Change procurement laws – not allowing for sustainable features to be stripped out at the time of construction. Create minimally acceptable standards for all buildings, old and new. Find new ways of delivering sustainability by leveraging existing tech – digital and electric (e.g., Wiser Energy Centre) and new ways of making sustainability financially accessible.





Smart Buildings

Buildings are responsible for almost half (40%) of worldwide emissions (36% EU; 40% UK).²⁹ Not only that, but they consume half of the world's electricity and a third of all energy – and if we don't do anything about it, it's only going to get worse.

To get anywhere near net-zero ambitions by the target set out in the Paris agreement, buildings need to undergo a seismic shift in efficiency and sustainability. We must address, police, and consider how new buildings are built, and more importantly we must change the way our current buildings operate.

2040

According to our research among UK and Ireland businesses, two thirds (70.2%) of businesses believe that half of existing buildings are likely to be net-zero carbon by 2040. Still, the pathway to fulfilling this optimism remains unclear.

²⁹ IEA, Buildings - A source of enormous untapped efficiency potential: <https://www.iea.org/topics/buildings>

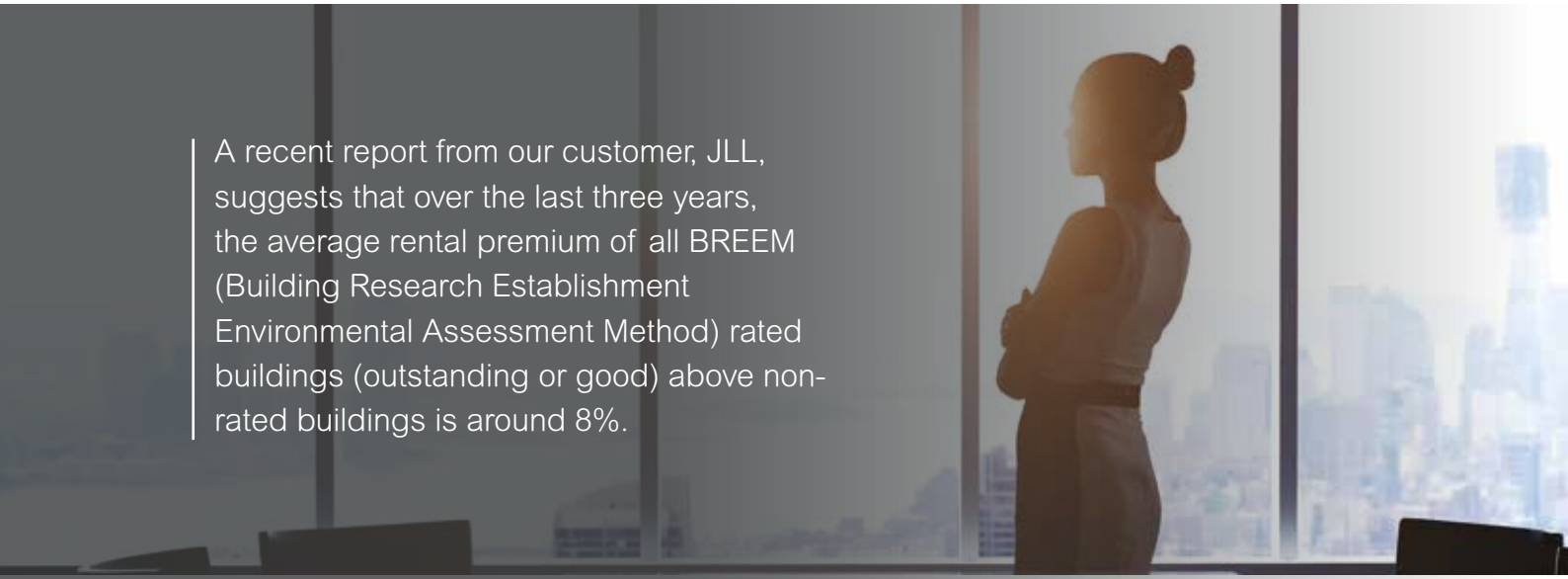
A tenth (11%) of total building CO₂ emissions are caused by the manufacturing of building materials such as steel, cement, and glass – and a tenth of this ends up going to waste. **Meanwhile more than a third (30%) of energy consumption in buildings is wasted.**

First, we must take a closer look at the current buildings we have. **To achieve net-zero, nine in 10 buildings** that exist today will need to be digitally retrofitted. Building portfolios, especially older buildings, can be complicated, and ‘out with the old, in with the new’ isn’t a quick fix.

Automation and the control of heating and lighting is an efficient way to decarbonise, resulting in environmental benefits and cost-saving (**~20% savings on SE projects**). Moreover, smart buildings can offer real-time analytics to improve building sustainability, efficiency and resiliency, bettering the overall workplace experience.

One in five (20.0%)³⁰ of our respondents have only just started measuring energy consumption and aren’t even aware of what is being wasted. **While almost half (42.8%)** of our respondents said they had increased their use of digital automation, **only a small proportion (17.4%)** have installed a building management system, and systems like this can help transform buildings into healthy and sustainable workplaces of the future.

Tellingly, **only a third (32.9%)³¹ of businesses** have adopted energy-efficient equipment in the workplace, and **only a third (32.8%) have switched** to a clean and renewable energy supplier.



A recent report from our customer, JLL, suggests that over the last three years, the average rental premium of all BREEM (Building Research Establishment Environmental Assessment Method) rated buildings (outstanding or good) above non-rated buildings is around 8%.



Smart Buildings

In the construction of buildings, we've identified two major obstacles that need to be addressed:

- 1. Shared ownership – Construction firms are rarely invested in the long-term life of the building. This responsibility is often passed on to the owner.**
- 2. Plan to end-point regulations – Procurement matrices don't factor sustainability into costs. A consequence of this activity is often conducted on the cheap with little consideration into GHG emissions.**

Ensuring that raw materials are responsibly sourced, projects are designed and built to high standards to ensure longevity, and materials at the end of life are reused as part of a circular economy – at the moment, there isn't a consistent responsibility throughout the cycle.

There is a disconnect between the size of the task ahead, the time it will take to put plans into practice and the responsible party it falls to. And while some businesses, such as data centres, are leading the way on action like science-based decarbonisation target setting (86.9% of data centre respondents believe that their organisation's carbon reduction targets are based on science), others are falling behind.

Only 64.6% of businesses across the UK and Ireland as a whole say the same, while a much lower proportion have committed to a science-based target validated by the Science-based Targets Initiative (SBTi). Elsewhere, 12 out of 16 UK county councils who responded to our Freedom of Information Request submitted in August 2021, had no plans to create smart buildings that use technology to control aspects of lighting, temperature and improve energy efficiency.

One project that demonstrates the true nature and value of smart buildings is Schneider's project with University of Edinburgh – the collaboration aims to improve the way buildings are designed and constructed in the future to minimise their impact on the climate.

Schneider Electric has also invested in ETAP and Planon to improve the way buildings are designed, and to help improve their energy performance throughout their lifecycle and specifically when occupied.³²

³² <https://www.ed.ac.uk/sustainability/news/2020/climate-emergency-collaboration-challenge>



Data centres leading the way on energy efficiency?

During the pandemic, there were huge surges in internet traffic due to the need for more remote connectivity, and more data centres are being installed around the world.

Real estate company JLL (Jones Lang LaSalle) has forecast a 21% increase in new data centre capacity in 2021. However, data centre organisations appear to have grasped the nettle and are leading the way in decarbonisation.

Other supporting data from research (on data centres)

- **75.2%³³ of data centre organisations** in the UK and Ireland say that reducing their carbon footprint is one of their top three priorities in the coming year and **46.7%³⁴** say it's their top priority.
- Almost two fifths (**38.0%³⁵**) of data centre organisations say they have mapped their entire emissions footprint scope **vs a quarter (26.8%)** of businesses as a whole across the UK and Ireland.
- **81.0%³⁶ of data centre respondents** believe they are on track to meet their carbon reduction targets vs only **62.4% of all UK and Ireland business respondents**.
- Besides the pandemic (**41.6%³⁷**), **the most frequently cited barrier** to implementing sustainability plans for data centre respondents across the UK and Ireland is regulatory/legislative uncertainty (**38.0%**) and that their digital transformation has not gone as expected (**37.2%**).
- However, they are also most likely to have taken advantage of government incentives to reduce their carbon footprints (**81.0%³⁸ vs 60.7% of businesses across the whole UK and Ireland**).



Smart Factories

Manufacturing and supply chains have had a key role during the pandemic and are essential to the reopening of the economy post-pandemic. However, the crisis has highlighted glaring vulnerabilities. Food and Drink Manufacturing and Life Sciences have struggled to ramp up production to meet growing demand while dealing with supply chain gridlock. Factory downtime for operational improvements has been hard to justify, making aggressive targets to increase energy efficiency and achieve net-zero while maintaining production seem even further away.

Yet, on the surface, many large industrial companies seem fairly upbeat about their ability to decarbonise. 64.1%³⁹ of large industrial companies say that reducing their carbon footprint is a top three top priority for this year.

64.1%

39 Survey of 850 key business decision-makers across the UK & Ireland by 3Gem on behalf of Schneider Electric in September 2021

68.2%⁴⁰ are 80.0% certain or higher that their carbon reduction goals will be achieved. However, scratch below this and our findings reveal:

- Only **44.1%⁴¹** say they've set a goal to be **carbon neutral before 2030, 27.6% net-zero** by 2050.
- Although **61.4%⁴²** believe they're on track to meet their carbon reduction targets and 67.6% believe they can measure their progress on emissions reduction, only a third (33.8%) claim to have mapped their entire carbon footprint.
- **One in six (17.1%)⁴³** have not yet done any mapping of their carbon emissions at all.
- **Only 29.0%⁴⁴ have started** measuring energy use and identifying energy waste.

While businesses have the appetite and enthusiasm, many are sitting with a blank sheet of paper, perhaps not knowing what assets they have or what to measure. **Tellingly, 62.2%⁴⁵ of the large** industrial companies surveyed don't consider scope 3 emissions to be the single most significant cause of their greenhouse gas emissions. **Only 7.6%⁴⁶ believe that their supply chain** is one of the biggest contributors to the total carbon emissions from their business.

Factory infrastructure is increasingly complex and like in many organisations, responsibility for sustainability is unclear or siloed in a specific department. When we talk about smart factories, we're talking about operational effectiveness and sustainability in the same breath. Energy is more than a commodity or a utility. It's an ingredient. Achieving net-zero while increasing output needs a smarter approach, tackling how to make things faster, better, and at the same time, save energy.



The factory of the future

A key challenge for large industrial companies is their ageing infrastructure. Schneider Electric's factory site at Flint in Wales is more than 30 years old and manufactures PVC trunkings for domestic and international markets.

The use of outdated analogue production machines meant there was limited control of energy use and the highest water consumption of any UK SE factory. Maintenance costs were high, while replacing the machinery was likely to be expensive and labour intensive. There were also issues of safety and excessive operational downtime with a full rip and replace project.

The site was seen as an opportunity to create a Schneider Electric smart factory – the first of its kind in the UK. With the support of the factory's technical team to identify key pain points and objectives, a solution was devised using the EcoStruxure™ platform to monitor and control all the critical process parameters at the factory, from power use to machinery and the building itself.

This was primarily a case of retrofitting the factory, rather than removing and replacing

the machinery, as this allowed the company to maximise efficiency and minimise downtime. The hardware solutions employed included the installation of smart panels, LED lighting, an overflow tank, and smart meters fitted to all machines, which allowed for Schneider's IIoT solutions to be deployed.

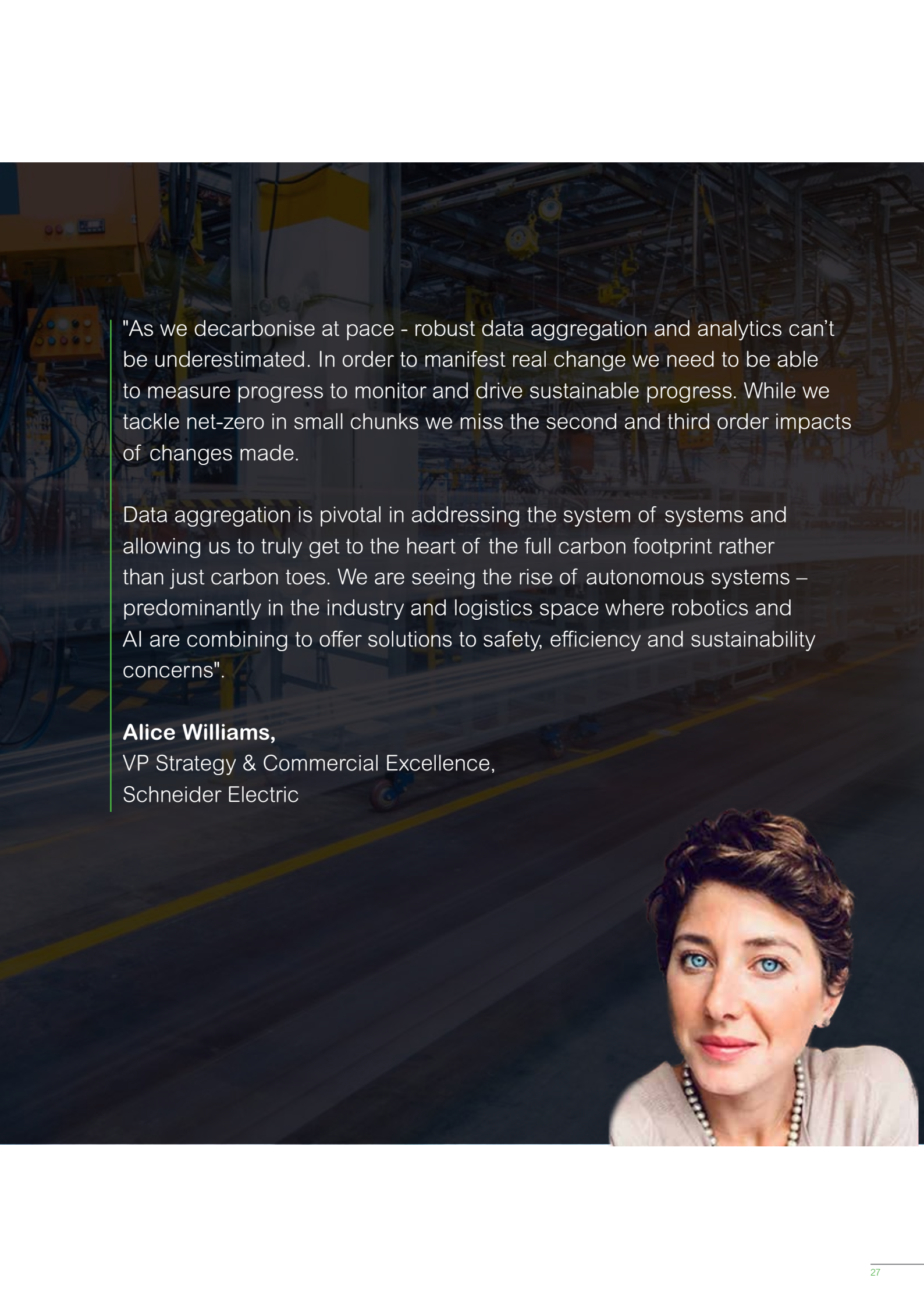
Schneider Electric's investment in smart technology solutions was paid back within just one year thanks to improvements in productivity and a range of efficiency-based savings, including:

15%

4%

15%

15% reduction in maintenance costs, 4% increase in productivity, and 15% reduction in electricity usage compared to 2019.

The background of the slide is a dark, industrial setting, possibly a factory or warehouse, with various mechanical parts and structures visible. In the bottom right corner, there is a portrait of a woman with short, dark, curly hair, wearing a light-colored top and a pearl necklace. She is looking directly at the camera with a slight smile.

"As we decarbonise at pace - robust data aggregation and analytics can't be underestimated. In order to manifest real change we need to be able to measure progress to monitor and drive sustainable progress. While we tackle net-zero in small chunks we miss the second and third order impacts of changes made.

Data aggregation is pivotal in addressing the system of systems and allowing us to truly get to the heart of the full carbon footprint rather than just carbon toes. We are seeing the rise of autonomous systems – predominantly in the industry and logistics space where robotics and AI are combining to offer solutions to safety, efficiency and sustainability concerns".

Alice Williams,
VP Strategy & Commercial Excellence,
Schneider Electric



Smart Grid

We're at the beginning of a decentralised electricity revolution. For the most part, in spite of recent issues with coal power stations being fired up to deal with the so-called 'energy crunch', centrally managed, fossil-fuel-dominated energy generation is gradually on its way out.

-20%

In the UK, fossil fuel dependence has dropped by nearly 20%⁴⁷ since 1970. According to the International Energy Agency's most recent report, global solar and wind capacity is set to double, outstripping gas and coal by 2025.

Wind and solar installations will increase by 1,123 gigawatts, and total renewable generation will hit nearly 9,745 terawatt-hours (TWh), "equivalent to the combined demand of China and the European Union," the IEA says.

47 https://www.statista.com/topics/4845/fossil-fuel-industry-in-the-uk/#dossierSummary_chapter1

By 2040, the world of electricity will be profoundly different: the share of electricity in everything we do will double, reaching at least **40 per cent of final energy consumption**, and six times more electricity will be generated from solar and wind (Source: IEA).⁴⁸

In Ireland, progress to renewable energy targets needs to gain pace. According to SEAI, the country managed to hit only **12% of the overall 16% renewable energy target in 2020**. When it comes to renewable electricity, the share was **33.2%. Ireland has a national target of 40% by 2020**.⁴⁹

However, this seismic energy transition is having a huge impact on the power supply and grid networks, which needs to be quickly addressed. Electrical distribution systems must digitise to support the energy transition. Without acting right now, there will be little hope of **achieving 2050 net-zero emissions targets**.

Why? Because upgrading our existing power networks within the next decade will be crucial to ensure a future that is powered by renewable energy and other distributed energy resources (DERs) such as electric vehicles, microgrids, and storage batteries.

EVs: a catalyst for a greener grid

Scrapping polluting petrol and diesel cars in favour of EVs is a crucial way to reduce our carbon footprint but could be vital in stimulating a **“green economic recovery”** and the catalyst for new, decentralised grid infrastructure. Investment in charging infrastructure and a more decentralised grid needs to stay ahead of demand for EVs and be able to cope with the increased demand for electricity consumption.

It also needs to support optimisable bi-directional, decentralised energy flows from battery storage, microgrids etc. for greater energy efficiency. **68.5%⁵⁰ of business leaders** in the UK and Ireland believe we will hit the milestone of **60% of global car sales being electric from 2030 on the road to net-zero**. When it comes to mass-market EV adoption, this is the area businesses can really drive. **Only 40%⁵¹ of the British public believes this milestone is attainable**.



⁴⁸ <https://www.iea.org/reports/world-energy-outlook-2019>

⁴⁹ <https://www.seai.ie/publications/2020-Renewable-Energy-in-Ireland-Report.pdf>

⁵⁰ Survey of 850 key business decision-makers across the UK & Ireland by 3Gem on behalf of Schneider Electric in September 2021.

⁵¹ Survey of 2,000 UK adults by conducted by Opinium on behalf of Schneider Electric in July 2021.

⁵² Survey of 850 key business decision-makers across the UK & Ireland by 3Gem on behalf of Schneider Electric in September 2021.



Smart Grid

The rise of the microgrid

Thirty years from now, more of our energy supply will come from disparate renewable resources such as microgrids. There may still be some sort of centralised control or monitoring of energy production and flow at a national level, but the idea of one single overriding grid will be obsolete.

Microgrids will increasingly deployed to power everything from university campuses to mining/industrial operations, data centres, and eventually residential homes. They have quickly become a feature of energy-intensive industries or large campuses wanting to ensure a resilient, cost-effective power supply but we're also seeing interest from mixed-use property developers wishing to boost capacity alongside access to the grid. In addition to linking to nearby renewable energy sources,

their benefits include the ability to be able to operate independently from the larger grid boosting, resilience as a backup to the larger electricity grid and reacting to power outages or unexpected peaks in demand. Fully automated, they are able to run in the background, **taking decision making out of the hands of energy managers or financial directors** about optimising electricity costs, lowering them due to reduced peak power requirements.

According to our recent research, 25.4% of UK and Ireland businesses claim to have installed a microgrid/renewable power source (e.g., solar, wind) in an effort to reduce their environmental impact.



Another key challenge specific to the grid in the UK is tariff management. Lots of businesses want to **embrace electrification and decarbonisation** but they don't know what stimulus to expect from the government and they are wary of committing to one technology in case they miss other opportunities. In the past, there have been ways to store short term operating reserves, plus the Triad system, where businesses could reduce their loads or contribute power to the grid at certain times, known as 'store events' or 'trade events' with government incentives attached. However, there's uncertainty at a strategic level about what might replace the current Triad when it **finishes at the end of winter in 2022.**

Grid of the Future

Increasingly, digital solutions provide the answer for many utilities providers seeking to integrate renewable energy and DERs to enable consumers to manage their energy more efficiently and effectively, reducing costs and emissions.

To date, delivering efficient, reliable energy distribution via the grid has proved challenging.

While complex, technology has advanced such that all the tools now exist to be able to modernise the grid to deliver on the expectation of governments and consumers towards **developing green, clean, renewable power solutions.**

Decarbonising the grid itself: SF₆ free

Sulphur hexafluoride (SF₆) gas is the most powerful greenhouse gas in the world, 23,500 times more potent than CO₂. Up until recently, it has been the only option for safe insulation of medium and high voltage electrical equipment, including primary and secondary switchgear, yet the growing expansion of electrical grid connections risks the gas being released into the atmosphere if not recycled correctly – and expensively – at the end of life. However, Schneider's extensive research and development of shunt vacuum interruption technology, combined with pure air, resulted in a new pure air alternative – green technology that could ultimately dispose of all SF₆ from the grid and contribute towards achieving international net-zero CO₂ equivalent GHG emissions.

Call to action: Only by replacing outdated linear power grids built when energy flowed in one direction with smart bidirectional 'grids of the future' able to handle more intermittent power generation and multidirectional power flows will it be possible to realise a truly green and resilient power system.



A different world: solutions showcase

In our quest to decarbonise the world, we must not forget that we can make a difference by using the solutions that exist already. These include digital tools powered by software and smart, clean electricity, which is the fastest way to decarbonise buildings, homes, data centres, infrastructure, industrial operations and grids.

This approach becomes even more important, when considering that 65% of global GDP is expected to be digitalised by 2022 (Source: IDC).⁵³

On the following pages are some of the innovative solutions that are already being deployed in key segments to help close the sustainability gap at a pace.

"The ambition shown by the UK Government to achieve our climate change commitments is remarkable to see. Now we need decisions to be made to give much needed certainty on topics such as decarbonisation in order to provide industry, businesses and consumers the confidence to adopt the technology and solutions that already exist to help quickly reduce emissions. Much of the technology exists to do what is needed to transition to a net-zero economy, now we need government support to accelerate adoption. This includes regulations and incentives to stimulate renewable uptake, expanding and simplifying the green homes grants, introducing commercial tax breaks for upgrading to digital and connected tech. We must future proof for renewable installations".



Greg Conary,
Head of Government Affairs, UK&I
Schneider Electric



⁵³ <https://www.idc.com/getdoc.jsp?containerId=prUS46967420>

Buildings and critical infrastructure

Today, we have an opportunity to revolutionise the way we design, build, operate and maintain our buildings and critical infrastructure with the help of software and smart design from the get-go. This is important as buildings today are still **82% inefficient on the whole, and infrastructure holds 79% of untapped potential**. Schneider Electric has been connecting the dots to empower our customers and partners to make better-informed decisions to drive our sustainability emissions by 2030.

Driving Net-Zero Football with Tottenham Hotspur

Schneider Electric is the official energy management partner of Tottenham Hotspur Football Club and has helped to create and manage one of the finest, most energy efficient stadiums in the world - for fans, visitors and the wider community. Schneider is supporting the delivery of a best-in-class energy management system to power what is one of the most technologically advanced entertainment venues in the world. Today, this state of the art stadium is a prime example of how digitisation and automation can alleviate the stresses associated with hosting and attending live events. The venue boasts a next-generation customer experience for sports fans, visitors and the wider community that can only be achieved with the latest technology. Tottenham Hotspur hosted the world's first major net-zero carbon football game in September 2021.



“With the help of digital technology, we can make our buildings safer, more comfortable, more profitable and importantly more sustainable. Cities generate more than 60% of global CO₂ emissions, and buildings are already the planet’s biggest consumers of energy, as well as the most inefficient. As a society with net-zero carbon ambitions, we must ensure that commercial and public buildings better manage their energy consumption in the new post-pandemic reality with less than 30 per cent occupancy rate. Making our built environment more sustainable is vital if we are to address climate change.”

“The decarbonisation of buildings and critical infrastructure requires collaboration across industries through public-private cooperation. While the public sector moves governance, policy and licensing forward, the private sector supplies innovative technology, agility and resources. By sharing risks and liability between stakeholders, large-scale value can be created for the wider community. Smarter buildings are creating healthier, more productive and collaborative spaces, improving profitability, and protecting the planet at the same time.”

Kas Mohammed,
VP Digital Energy, UK&I
Schneider Electric





Homes

Today, homes represent 20% of global CO₂ emissions worldwide. To get to our net-zero goal, we must bring homebuilders, mortgage providers, homeowners and residents onside and empower them with the right technologies and solutions to help fight against climate. As more and more smart home devices are powered by clean electricity – from heating to cooking to personal transportation – we have an opportunity to decarbonise our dwellings at a pace without changing our digital and connected lifestyles. This is now possible through cutting-edge technology and innovation, with positive, sustained change truly starting at home.

Bringing Net-Zero Homes Closer with Wiser™

The Wiser ecosystem is evolving to integrate solar panels seamlessly, batteries, inverters and cutting-edge energy management solutions to control and manage the energy needs of all devices in the home – from plugs and sockets to electric ovens and EVs. All electrical energy from the home and the grid converges in a single panel where load control is managed directly: from grid to plug with the help of extremely advanced Artificial Intelligence (AI). Where possible, the system prioritises green energy power,

ensuring power-hungry appliances and devices consume most of their energy from the solar or decarbonised energy sources in the home. As a result, energy bills go down, and the home becomes more sustainable, renewable-energy-powered and better suits homeowners and residents.

"Despite fears that climate change could slide off the agenda during this period of uncertainty, the opposite has happened. The change in lifestyles and working practices across the economy not only resulted in cleaner waters and cleaner air, but also highlighted inefficiencies in energy management and areas of unnecessary energy spend, such as energy inefficient homes and empty offices still consuming significant amounts of power, as well as leading to increased energy bills. Incentives to improve insulation and digitally retrofit homes won't just help protect the planet – as heating, cooking and transportation are on the verge of turning electric. Home improvement will drive the reduction in energy bills and energy poverty, making more houses feel like real homes."

Nico Van Der Merwe
VP Home & Distribution UK&I
Schneider Electric





Data Centres

Data centres have been the unsung heroes of the pandemic, ensuring that businesses, healthcare facilities, education and life science research has continued uninterrupted. Various analyses predict that data centres account for around **1-2%** of global electricity consumption. However, in 2020, the IT sector was estimated to represent between **5% and 15%** of global energy use. Our **research** has found that with the advocacy of 5G and edge computing, IT energy demands could increase 50% by 2030, signalling a step change to decision makers that urgent action must be taken to decarbonise.

At Schneider Electric we believe the data centres of the future must be resilient, adaptive, sustainable, and efficient, with all four vectors considered during deployment and operations. Only by creating a bold and integrated strategy can we empower the industry to work collaboratively, towards a Net-Zero future.

Creating the World's First Climate Positive Datacentre with EcoDataCenter

As the world's first climate-positive data centre, EcoDataCenter has created a new generation of large-scale colocation facilities that combine innovative design with energy efficient technologies. It considers its impact on the surrounding environment, prioritising biodiversity and the local community's well-being,

while using leading technology to recycle the facility's heat waste, supporting local utilities and the grid.

By meeting the demands for resilience and sustainability with EcoStruxure, EcoDataCenter can go beyond net-zero emissions and achieve true climate positivity.

“With the demand for digital services showing no signs of slowing, the need to drive sustainability while balancing greater requirements for resiliency is paramount. Addressing one part of the data centre equation alone is not the answer, but any improvement in efficiency via cooling will amount to enormous savings – both in terms of energy usage, cost and carbon emissions.”

“Today, considering our impact isn't the only element data centre operators need to think about, and neither is just the technology we deploy. It requires a holistic, full-scale view of the environment and of our energy usage. Typically, as operators drive sustainable initiatives, they struggle to maintain efficiency and resiliency, which are the missing parts of the puzzle for such goals to be long-lasting. As an industry we must focus on becoming more sustainable, helping to reduce our climate impact for future generations and safeguard the planet.”

Chris Collins
Country President Ireland
Schneider Electric



Grid

With the digital economy taking off, increasing use of clean electricity, and adverse weather conditions threatening power supply interruptions – existing energy infrastructure is no longer fit for purpose. The digital economy will require **50% more power by 2030 than it consumes today.**⁵⁶

Smart bidirectional grids can change that. What's more, smarter, connected technologies will enable intermittent renewables supply and increasing demand to be balanced without the need for massive increases in spending and grid reinforcements. We can go further to future proof the grid for the net-zero world with SF₆-free innovation and the introduction of hybrid AC/DC standard microgrids.

Electric Technology Project Sets Sail in UK's First Marine Industry Project

The maritime industry's carbon footprint is significant — a large container ship can emit the CO₂ equivalent of 75,000 cars.⁵⁷ At the same time, the sector as a whole is responsible for 2.5 per cent⁵⁸ of global greenhouse gas emissions. Schneider Electric has partnered with Serco NorthLink and local authorities to take a fresh approach to reduce marine pollution and preserve wildlife through shore connection technology.

The project will supply locally produced 'green' electrical power to the MV Hamnavoe NorthLink ferry while docked in Stromness, Orkney. The project is believed to be the first large commercial ship-shore connection in the UK and is just one element of an overarching low carbon travel and transport project for the town. By plugging into the power grid with 100 per cent renewable electricity, UK ships at berth could avoid environmental impacts of up to £402 million a year and reduce a major health hazard.

“The grid is the backbone of today's digital world. As utilities look to invest in upgrading the electrical network to drive net-zero grids by 2035 and simultaneously increase EV charging capacity, they will also be looking to avoid creating upward pressure on the cost of electricity for consumers and businesses. Harnessing a “smarter” grid to create network efficiencies and smart load balancing while also giving the ability to drivers, homeowners and business owners to earn from their energy surplus could provide an incentive to balance the grid and create a culture of ‘prosumerism’ – a win-win situation.”

David Hall,
VP Power Systems UK&I,
Schneider Electric



⁵⁶ Schneider Electric Digital Economy and Climate Impact Report
<https://perspectives.se.com/research/digital-economy-climate-impact>

⁵⁷ IDTechEx: Electric and Hybrid Boats and Ships 2019-2029
<https://www.idtechex.com/en/research-report/electric-and-hybrid-boats-and-ships-2019-2029/648>

⁵⁸ European Commission:
Reducing emissions from the shipping centre https://ec.europa.eu/clima/eu-action/transport-emissions/reducing-emissions-shipping-sector_en



Factories

Sustainable, agile, and resilient industries are key to achieving the net-zero world. Yet today, **32% of the world's total carbon emissions**⁵⁹ still come from industry, both directly and indirectly (Source: IPCC Working Group III 2010). Sustainable industries require next-generation automation, software and clean energy to achieve the next level of operational efficiency. As economies recover, efficiency, innovation in partnerships and building back better have never been more important. More collaborative operations can unlock more than **\$100 billion in value for industry** (Source: McKinsey).⁶⁰

Driving the Next Level of Efficiency with Universal Automation

Universal Automation is the new world of plug-and-produce automation software components that take inspiration from IT to solve industry challenges. It is Schneider Electric's new vision for next-level efficiency, productivity, and sustainability— the ability to leverage vendor-agnostic software to drive future efficient and sustainable industries. We think of it as the dawn of an industrial automation app store with a reference implementation program shared across vendors.

EcoStruxure Automation Expert can be implemented with existing hardware as a universal automation solution, driving unprecedented flexibility.

"Industrial companies have been held back by old processes and outdated assets. However, in this age of digitisation, organisations no longer have to be held in check by the limitations of this approach. The reality on the shop floor is that, in addition to smart machine functionality and operator know-how, software and interoperability of best of breed software solutions are what helps to establish true marketplace differentiation. The open nature of much of this new software now allows for a re-examination of how fundamental manufacturing floor processes are implemented. New software tools that work together are often what enables the agility, innovation, and consistent quality needed to compete and drive sustainable industries of the future operations."

Mark Yeeles,
VP Automation UK&I
Schneider Electric



59 IPCC Working Group III Industry Report https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter10.pdf

60 | McKinsey, Digital collaboration for a connected manufacturing workforce

<https://www.mckinsey.com/business-functions/operations/our-insights/digital-collaboration-for-a-connected-manufacturing-workforce>

Smart Cities

A circular infographic with a green border and a white center. The number '60%' is written in green in the center. The background of the circle is partially filled with green, representing 60% of the total area.

60%

Cities generate more than 60% of global CO₂ emissions

A circular infographic with a green border and a white center. The number '78%' is written in green in the center. The background of the circle is partially filled with green, representing 78% of the total area.

78%

Cities consume 78% of the world's primary energy

Today, cities generate more than 60% of global CO₂ emissions and consume 78% of the world's primary energy.⁶¹ Making them more sustainable through innovative digital and electric solutions can help cities become more efficient, sustainable and kickstart the change we need.

One of such innovative solutions could be the use of renewable energy and digital innovations such as hybrid AC/DC microgrids in district heat projects – where water is heated directly through solar panels and is set on a closed loop with a heat exchanger which taps into existing infrastructure and saves hundreds of tonnes of carbon a year, acting as a giant water battery and powering homes, schools and hospitals.

⁶¹ UN Habitat Report on Climate Change <https://www.un.org/en/climatechange/climate-solutions/cities-pollution>



What more do we need to do to build a Net-Zero Future?

There is still time to make the emissions reductions we need to combat global warming. But we need to act quickly. We all need to do more. We need to prioritise the easiest to implement measures first, to buy time to tackle the hard to abate challenges. Yes we need to transition to renewable energy and we need to invest in more wind and more solar power.

But reducing energy waste and implementing effective energy management will buy us the time we need to build these new power sources and reduce the impact of fossil fuels in the meantime. We need to retrofit, legislate and regulate, invest in smart grids, smart factories, smart homes and smart buildings to achieve the reductions in carbon emissions we need to make. We need to act in every area we can, where we can. Only by understanding the true scale and scope of the challenge ahead will we be able to address what needs to be done to save the planet.

Closing the emissions reduction gap starts with understanding our full responsibilities

More UK and Ireland businesses need to be encouraged and supported to accurately map and understand their full carbon footprint.

Effective target setting


Climate action targets must be aligned with science and achievable and ambitious enough to satisfy stakeholders and drive

meaningful change. A stepping stone to setting a net-zero target for any company is setting or reassessing goals against the standards established by the Science-Based Targets Initiative. These standards are driven by climate science, which clearly outlines the trajectories needed to avoid the worst of global warming's impacts. They are rigorous, requiring companies to take meaningful and material action to be validated.

Mindset – for measurement

Basing climate action commitments on science isn't the only consideration. When setting targets, it is important to understand what success looks like, and what is realistically achievable. Diagnostics has to come before strategy – before any tech investment occurs. Thorough analysis is required, starting with data on resource consumption and waste – including emissions across your business estate. Any plan starts with baseline data, is measured with data, and the disclosure of data gives the programme validity.

The baseline results may prompt a sharp intake of breath, but it's essential to feed into a meaningful strategy to take you from knowing your carbon footprint to net-zero. Then it's a case of breaking it down into bite-sized chunks and setting out a roadmap to get there as quickly as possible – with the help of the right tech solutions. And regularly measuring progress.



Funding the future

Smart solutions need smart finance, so that businesses and communities can take advantage of existing and new technologies to scale-up the fight against climate change.

The falling cost of generation through renewable resources like wind and solar means it is now significantly more economical to use clean energy resources for large-scale generation.

And whether adopting renewable energy generation, or investing in energy efficiency solutions, there is an increasing array of funding and resource available. These include non-CapEx alternatives for critical infrastructure upgrades and sustainability, and “Energy as a Service” solutions that bring together energy and financing experts to help organisations gain more control over their energy supply, costs, and efficiencies. Public private partnerships are also a key way to spearhead sustainable actions that will bring long-term financial and economic benefits.

A culture of accountability – we’re all responsible

Climate action doesn’t happen in a vacuum; it can’t be managed by one department or level of the organisation alone. The best programmes use integrated, cross-functional teams to ensure successful development and execution. This team should include representatives from procurement, energy,

sustainability and operations, and even supply chain, legal, investor relations and communications – and always with C-level sponsorship, enabled by clear mandates and resources. And everyone, from shop floor to top floor, needs financial incentives linked to sustainability targets to ensure meaningful progress is made.

Transforming businesses, homes and public spaces into net-zero environments is a complex and challenging undertaking that cannot be underestimated. We cannot rely on governments alone to achieve the reductions we need to make. We all have a part to play, and we can all benefit from the changes we need to make.

More efficient housing will result in more comfortable homes with lower energy bills.

At Schneider Electric we have seen how putting sustainability at the heart of our business drives innovation and business growth. For Governments there is a genuine opportunity to create green jobs and wealth which will in turn enrich society. And a sustainable planet promises to be a healthier planet. Powering change isn’t just essential, but it can also be beneficial. Now we need to embrace what needs to be done and do what we can to make net-zero nations a reality.

*ESG goal for businesses

Question	Response choices	Column N %	Count
Q16. Thinking about the broader ESG / sustainability agenda within your organisation, which (if any) of the following 17 UN Sustainability Goals/ associated targets has your organisation committed to supporting?	End poverty in all its forms everywhere	22.7%	193
	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	33.1%	281
	Ensure healthy lives and promote well-being for all at all ages	38.4%	326
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	28.9%	246
	Achieve gender equality and empower all women and girls	27.5%	234
	Ensure availability and sustainable management of water and sanitation for all	24.7%	210
	Ensure access to affordable, reliable, sustainable and modern energy for all	21.6%	184
	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	25.8%	219
	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation	19.3%	164
	Reduce inequality within and among countries	14.4%	122
	Make cities and human settlements inclusive, safe, resilient and sustainable	16.7%	142
	Ensure sustainable consumption and production patterns	14.4%	122
	Take urgent action to combat climate change and its impacts	17.1%	145
	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	15.5%	132
	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	19.5%	166
	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	16.7%	142
	Strengthen the means of implementation and revitalise the global partnership for sustainable development	10.9%	93
	None of the above	3.6%	31
	Don't know	1.6%	14
Total	100.0%	850	

3Gem Research Data Breakdown

Country	
UK	650
Ireland	200
Sector	
An industry - Large industrial organisations, food and beverage producers, wastewater management etc.	26.3%
Commercial buildings – Organisations that develop and manage large commercial buildings etc.	25.7%
Residential – Organisations that develop and manage residential homes	23.2%
Data Centres – Data centre providers and management	24.8%
Role in organisation	
Chief Executive Officer	15.2%
Chief Information Officer	9.2%
Chief Financial Officer	5.8%
Chief Operating Officer	8.5%
Other C-Level Management Position	7.5%
President/Managing director	13.1%
Operations Manager	20.1%
Facilities Manager	8.4%
Sustainability Manager	12.4%

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