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Setting the standards for sustainable appliances:

Your high performance checklist

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Setting the standards for sustainable products:

Your high-performance checklist

For the UK's gas and electric sector, as for many others, this is a uniquely turbulent moment in time.

Organizations within the industry are in the midst of great uncertainty, facing a gathering storm of factors including Covid-19's ongoing effects, the digital revolution it has helped accelerate, the impact of Brexit and changing legislation.

With this uncertainty comes challenges. The financial implications of both Covid and Brexit are stark, and have inevitably led to market pressures that see organizations prioritize short-term survival over other long-term plans. For some, this has triggered a momentous shift away from the sustainable goals that, previously, the UK had been moving swiftly toward, as brands consider whether to scale back on the added expense of sustainable growth.

But for those businesses set on thriving in the next decade and beyond, such short-termism is not an option. In April 2021, the UK government gave their biggest indication yet as to where our future lies. Not only did they reaffirm their commitment to achieving net zero by **2050**, but they doubled down, pledging to cut emissions (compared to 1990 levels) by **78%** in time for **2035**¹. In doing so, they set into law the most ambitious climate change target in the world. And so, in spite of the hurdles, the sustainability of both products and practices remains firmly on the agenda.

Ambitious organizations of all sizes must bring themselves out of this mindset of sustainability as an expense. In the long term, the opposite is true. While sustainable industry practices are fundamentally linked to green, environmental goals, they are also capable of bringing about more sustainable social and, crucially, financial outcomes, too.

In times such as these, with change on the horizon, sustainability is the only safe bet.



Prepare your business for sustainable success

As an institution that's fully committed to advancing each of the UN Sustainable Development Goals by helping our clients uphold sustainable standards, BSI has industry-wide expertise in the subject and is uniquely positioned to apply it to the gas and electric sector. So to help gain an advantage in the market through sustainability, we've produced our high-performance checklist. Made up from a series of articles, it contains key insights, trends and strategies your business can use to meet your sustainable goals today, and in the future.

Your high-performance checklist

By sharing lessons from the industry's most successful and innovative leaders, this checklist will help you pave the way for a more sustainable future. In each article, you'll learn how to:

- **Lead the way with sustainable products**
- **Meet new customer needs**
- **Harness the principles of the circular economy**
- **Meet the product safety standards of the future**
- **Lead the charge through electrical and lighting innovation**
- **Seek new markets and opportunities**



With insights from industry-leading professionals:



Martin Townsend,
Global Head of Sustainability and Circular Economy, BSI



Graham McKay,
Global Head of Built Environment Energy Products, BSI



Richard Garrett,
Marketing Manager – OEM, Signify



Steve Haskew,
Head of Global ITAD, Circular Economy & Sustainability, Circular Computing



Article 1

Leading the way with sustainable products

Tactics for gaining a market advantage through sustainability

Tactics for gaining a market advantage through sustainability

In the last five years, the UK has made huge strides toward a greener, more sustainable industry, and it is showing no signs of slowing down. With ongoing commitments to greener housing such as August 2020's Green Homes Grant, the government has paved the way for an economy that – in spite of the short-term implications of Covid-19 – is fully committed to long-term sustainability.

And so, before we highlight our tactics for gaining your market advantage, it's important to understand the UK's current state of play when it comes to green legislation and energy use.



Unprecedented renewable electricity use

The year 2020 saw a huge milestone in the UK's pursuit of clean electricity, marking the first year where **renewables (42%) overtook fossil fuels (41%)** as the UK's main source of electricity production for a year. This is an upward curve that has gained increasing momentum and that, despite the possibility of a Covid-induced momentary decline in 2021, is predicted to gather pace in the next five years.

Proposals for greener gas

Natural gas use, by contrast, has been on the rise since 2013, and gas was the only UK energy source to see demand rise in 2020, at +3%³. But there is growing governmental acknowledgment toward the need for greener options. The Green Gas Levy⁴, announced in the March 2020 budget, has been through a number of consultation stages since and will look to fund biomethane injection into the gas grid via a new Green Gas Support Scheme.

The bottom line for gas and electric manufacturers

As a contributor to three of the UK's four most polluting sectors⁵, these changes are being keenly felt by those within the gas and electric industry.

The UK's most polluting sectors, according to the UK greenhouse gas commission, 2019

-  1 Transport
-  2 Energy Supply
-  3 Business
-  4 Residential

Heating alone accounts for **37% of the UK's overall emissions**⁶, and as changes are made in policy for energy providers, it's inevitable that the way appliances use this energy will also change in the near future.

By understanding these market changes, and by anticipating changing expectations and regulations, manufacturers can not only guarantee their products'

ongoing compliance but also gain key market advantages. A more sustainable product can help sell more units through market differentiation, gain loyal, repeat customers through efficiency and longevity, and even raise profit margins through a more premium product reputation. So, what changes can you as a manufacturer make to get ahead of this curve?

“A more sustainable product can help sell more units, gain loyal repeat customers and even raise profit margins.”

Three tactics for a sustainable market advantage

1

Minimize material waste

2

Maximize product longevity and efficiency

3

Harness lower or alternate energy use

1

Minimize material waste

Minimizing the waste materials your products actively or passively create is a key component toward more sustainable practices. Often the most immediate and actionable changes to make, these practices will become increasingly commonplace in the near future. But by adopting them now, you can make your brand and products more appealing to customers, as well as saving manufacturing costs in the long run.

Article 1: Leading the way with sustainable products

Help customers dispose of used products.

This can ensure that the appliances your products are replacing are properly disposed of and, where possible, reused or recycled. It could be carried out as part of installation service, or it could mean setting up a trade-in scheme – something BSI partner Bosch has used to good effect with its kitchen range. In both instances, you'll improve customer trust and gain an edge in the market.

Use sustainable packaging.

This is a key move for manufacturers in every industry, and one that faces increasing demand from consumers everywhere. Manufacturers have begun phasing out all plastic packaging on their products, to the benefit of the environment and ongoing sales.

Drawing inspiration from the IT industry

One sector that is relatively mature when it comes to waste minimization is IT, where IT Asset Disposal (ITAD) is already an important feature of the business landscape. Large businesses have a good record for disposing of their unwanted IT equipment through accredited ITAD providers, who then ensure that all reusable components are put back into the IT ecosystem. As a provider of carbon-neutral, remanufactured computers, sustainable IT company Circular Computing partners with ITAD providers to fully minimize this waste.

“We work with a number of large businesses that follow quite an aggressive roll-in and roll-out IT strategy. On a weekly basis, they'll roll 1,000 computers in and 1,000 out – and those thousand that come out will come in for remanufacturing with us and be resold to a new user.”

– Steve Haskew,
Head of Global ITAD, Circular
Economy & Sustainability,
Circular Computing



2 Maximize product longevity and efficiency

We are currently using up the earth's natural resources twice as fast as they're being produced⁷, and there is growing acknowledgment that, for sectors within the built environment to survive, now is the time to be producing longer-lasting products and materials. For the gas and electric industry, that means a conscious shift toward longevity and efficiency.

Innovate for efficiency.

The successful uptake of LED lights, led by BSI partner Signify, has highlighted the appetite for more efficient, longer-lasting products that – though perhaps more of an outgoing in the immediate term – represent long-term customer savings. For Signify, a brand that has been focusing on the LED market for three decades now, and that recently boosted its reputation for emergency lighting with its Philips TrustSight gen 3 range⁸, the commitment to ever more efficient innovations has helped secure their status at the forefront of their field.



“We jumped into LEDs really quickly, and for a long time there was controversy. We fought through that controversy because we knew it was the right thing to do. Nowadays, people see them as kind of a no-brainer.”

– Richard Garrett, Marketing Manager – OEM, Signify

Encourage sustainable collaboration.

There are certain elements of your products that require innovative partnerships to maximize their efficiency – for example, the carbon footprint of a heater can be vastly

reduced through strong insulation. By finding partners in other industries with a similar approach to sustainability, you can create a network that guarantees a more successful product overall.status at the forefront of their field.

3

Harness lower or alternate energy use

The strides made in the UK's energy production sector cannot redress sustainability issues alone, and as 2050's net zero target looms, the onus will be on everyone to use our (however limited) clean energy more efficiently. For this reason, as well as an increasing trend among consumers for products that save them money in the long term, looking at a product's relationship with the energy it uses will be crucial.

Minimizing your energy use.

From induction hobs to electrical boilers, there are innovations taking place throughout the industry around products that use less energy to produce the same results. BSI partner Glen Dimplex, for example, has been leading the way with electric flame technology, allowing users to retain the aesthetic enjoyment of a log fire with a 100% energy-efficient option.

Using alternate energy sources.

Another way to readdress the energy issue is to design products that can be powered with alternate, green energy sources. Through items such as biomass boilers and refrigerators that use natural refrigerants like CO₂, more and more manufacturers are turning to alternate techniques to carve themselves a niche in the market.



Checking sustainable products off your list

Whether you concentrate on an individual change, or come to meld aspects of the above ideas together, keeping sustainability in mind for the design, manufacture, installation and lifetime of your product is an invaluable way to uphold standards and ensure your brand's reputation for years to come.



Article 2

Meeting new customer needs:

A strategic Q&A with industry leaders

A strategic Q&A with industry leaders

As in every sector, businesses within the gas and electric industry are bound to the fluctuating needs and appetites of their customers, something that became truer than ever over the last 18 months. By staying ahead of these needs, by evolving and innovating products and service offerings accordingly, organizations can gain a crucial market advantage.

So, how are customers behaving today? Which sustainable innovations and habits are at the forefront of the market? Which future trends should organizations be preparing for today?

We sat down with two leading gas and electric industry professionals to find out.

Our professionals



Richard Garrett,
Marketing Manager – OEM, Signify

Joining us from long-time BSI collaborators Signify (formerly Philips) is Richard, a marketing professional with more than a decade's experience in the lighting industry. Specializing in marketing strategy, product marketing, innovation delivery and customer centricity, he helps Signify lead the sustainable lighting market by gaining well-earned trust with a wide range of customers.



Graham McKay,
Global Head of Built
Environment Energy Products, BSI

As technical and commercial lead for BSI's global gas and electrical offerings, Graham brings specialisms in product compliance, market access and related safety legislation to the table. With more than 30 years' industry experience, he has provided relevant training and experience to blue-chip companies, government departments and certification agencies throughout the world.

Article 2: Meeting new customer needs

Q. In light of Covid, how would you say customer expectations around product quality and service have changed in the last 12 months?

“The key is transparency. We’re clear about any delays or changes in schedule we do have, and we communicate it quickly”

Q. We know consumers in every industry are demanding more digital experiences from their suppliers. How has this impacted the industry over the last 12 months, and how have organizations adapted to meet these consumer expectations?



Richard:

At Signify, we've seen a real increase in customer awareness around supply. Because of Covid and the delays it has caused, customers are concerned that perhaps businesses are rushing, and trying to get things up and running immediately. So, while the immediate concern is around product availability, the elephant in the room is: "Are you going to take any shortcuts?" Which is an absolutely fair question. Obviously in Signify's case, and for any organization looking to thrive in this environment, the answer to that is "no".

The key is transparency. We're clear about any delays or changes in schedule we do have, and we communicate it quickly – **and that transparency earns us their trust.**

Graham:

A large challenge in terms of adapting has been around upskilling the traditional workforce. There's a real appetite among customers for smart products, and for manufacturers that means taking products out of what you might call a "gimmick" phase – where the technology used may not translate to a real user benefit – to a more usable, user-centric product that truly moves things forward. A lot of the challenges this brings up are around information security, and bringing in the right expertise and skills to keep customers protected. Many of these companies are traditional appliance companies, and the introduction of apps, smart products, etc. requires large investment in terms of getting that cyber security right. Over time, I think these will become core skills that all manufacturers need in place.

Article 2: Meeting new customer needs

Q. How do you see digital customer experiences changing and evolving in the next five years?

Richard:

In the lighting industry, it's still all about product innovation, and there's real need among our customers to see what more our products can deliver. What I think we'll end up seeing – perhaps not that rapidly – is a bigger demand for digital innovation, particularly for applications and portals where they can check their service experience. I think we'll see demand for a more innovative approach to these portals.

Graham:

These digital experiences are only going to grow. We rely on our phones and apps more and more, and these reliances will increase as other smart products become more useful to the end user. Something that I also think needs to happen to facilitate this change is more regulation around information security.



“People are voting with their feet. They don’t want mountains of packaging, they don’t want single-use plastics, and they’re far more open to sustainable answers.”

Q. Would you say the appetite for sustainable products and services is increasing in the sector? If so, what kind of products/services are customers looking for?

Graham:

Yes, definitely, there are a lot of sustainable factors customers are more knowledgeable of. More and more, people are voting with their feet. They don't want mountains of packaging, they don't want single-use plastics, and they're far more open to sustainable answers. Take refurbishment and remanufacturing – a practice that previously would have been considered more part of a secondary market, but now is accepted as a lot more mainstream. Ten years ago, a business kitting themselves out with refurbished computers, for instance, would be considered an oddity. Not anymore.

Then there are things like water usage – people are becoming aware that fresh water is a luxury, and energy-intensive resource, and so appliances like washing machines, dishwashers, etc. that are more efficient in their water usage are much more attractive to people.

Richard:

I've been making a lot of presentations around product sustainability for the last couple of years, and the quality of the questions I hear have improved dramatically. Customers are far more engaged in sustainability, and far more understanding of why we need it. We're seeing a greater demand for locality and transparency all the way down the supply chain, like with conflict minerals. Traditionally they might be hidden out of sight five, six or seven levels down the chain. Nowadays we, and our customers, are a lot more conscious of the supply chain as a whole, and keeping things transparent and sustainable.

Article 2: Meeting new customer needs

Q. What kind of disruption has Brexit caused the industry, and what impact will this have on your customers? Will it affect the kinds of products consumers want?

Richard:

It has of course changed things, but we've been very proactive. We've made adjustments – many of which actually supported our sustainability goals anyway in terms of losing inefficiencies in our supply chain. Multiple stop-off routes throughout Europe, for instance. Now, as a separate port, we can fast-track how quickly those products and components get to us. So in some ways it's helped put a deadline on efficiencies we were working toward anyway.

Q. Following Brexit, are there any significant changes in regulation that might affect the kinds of products your customers demand?

Graham:

What the UK has done is create a whole new set of regulations – based off and almost identical to the EU's legislation. So as it stands, not much has changed. But I think we can expect the two systems to start to diverge fairly soon. The UK will create its own regulation, as will the EU, and they probably won't look alike for too long.

Changes aren't likely to impact existing goods and technologies – fridges, TVs, etc. – but as more new technologies come through in the industry, things will start to diverge. When we look at regulation for IoT and smart devices – something that needs to come – I could easily see regulations within the UK and EU differ around these devices. For organizations looking to thrive in a more interoperable, IoT-led environment, this will be a huge consideration in terms of accessing different markets.

“In some ways it's helped put a deadline on efficiencies we were working toward anyway.”

Customers are understanding of these changes and support maintaining sustainable practices. They're becoming more aware of whether products are made in the UK, and what that might mean for a sustainable supply chain. Whether they wanted Brexit to happen or not, customers are being really proactive, and saying: “Right. This is where we are – let's make the most of it and plan for the future”. I don't think anyone initially realized the link between Brexit and potential sustainable opportunities, but now we're here, it's a certain plus.

“I think we can expect the two systems to start to diverge fairly soon. The UK will create its own regulation, as will the EU, and they probably won't look alike for too long.”



A collaborative approach to consumer satisfaction

Graham and Richard are two examples of the outstanding network of expertise BSI has built up over the years, collaborating together to raise standards and increase customer expectations in the UK and beyond. Speaking to the pair brought two key learnings to light. Firstly, that despite a time of financial uncertainty, customers are committed to sustainable practices, seeing them as a fundamental element to the products they choose to buy. Secondly, the way customers wish to interact with manufacturers and their products is changing, becoming ever more digital, and more personable too.

If you'd like to become a part of the constantly growing BSI network, get in touch. Contact energy@bsigroup.com



Article 3

Going circular:

How to harness the benefits of the
circular economy

How to harness the benefits of the circular economy

In the UK, Europe and beyond, we're seeing the beginnings of a path to change. At long last, policy-makers, corporations and society as a whole have come to understand the unsustainable nature of long-established industrial and domestic practices. As they've done so, a set of practices has emerged that gives us the opportunity to build a more sustainable, viable future: the circular economy.

In this article, we will take you through its new-found relevance within the gas and electric industry, before highlighting two practices you can consider adopting to boost your business sustainability.

How the circular economy works

Unlike the traditional, linear approach to consumption and production, which relies on taking natural resources, making products and wasting and replacing them when they reach the end of their lives, a circular economy minimizes waste, keeps products and materials in use for as long as possible and regenerates the earth's natural systems. As an economic model, it seeks to decouple economic growth from resource consumption.

What does this mean for the gas and electric sector?

Leading businesses within the sector have already begun applying circular principles in a number of ways – two of which are included below – and with the UK government reaffirming their commitment to its ideas as recently as July 2020¹⁰, this will only increase in future.

£23 billion per year

The amount UK businesses could save through circular principles⁹



“The move to a more circular economy will bring the four UK nations environmental, financial and social benefits.”

- A statement issued jointly by the Department for Environment, Food and Rural Affairs (Defra), the Department of Agriculture, Environment and Rural Affairs (DAERA), the Welsh Government and the Scottish Government, July 2020.

By understanding and harnessing its principles at this early stage, forward-thinking appliance manufacturers can grasp a huge opportunity: building products to sustainable standards and, in turn, ensuring ongoing appeal with the consumers of both today and tomorrow.

Harnessing circular principles

The Ellen MacArthur Foundation, a BSI partner with whom we developed our world-first **BS 8001 – Circular Economy standard**, categorizes three main circular principles:

- **Designing out waste and pollution**
- **Keeping products and materials in use**
- **Regenerating natural systems**

And there are many methods already in play within the industry that look to harness these principles. By doing so, manufacturers have gained numerous market advantages:

- **Increased cost-effectiveness**
- **Improved brand reputation**
- **Ongoing compliance**

So, to gain these advantages, here two of the key methods you can consider to make the most of circular principles.



1 “Closing the loop” through waste management

A crucial principle of the circular economy sees no materials – or as little as possible – go to waste. In the long run, effective waste management means designing products where every component is given the longest possible life, but in the short term it also means doing what we can to reuse and redistribute products and materials. It’s a practice that’s growing rapidly in popularity.

\$9 billion:
The current annual worth of the recommerce industry

\$10.6 billion:
Its projected annual worth by 2025

The multiple benefits to recommerce

Recommerce is the act of reselling products and materials, whether through the refurbishment of an entire product or the reuse of particular parts. The benefits are not only environmental, but also highly practical from a business perspective. By putting such strategies in place, savvy organizations can **save the cost of new materials and ease the strain on supply chains.**

Historically, refurbished items haven’t had a good reputation with consumers – often considered an unreliable, budget option. But times are changing. More and more consumers and businesses are understanding the need to preserve and reuse materials on a planet with dwindling resources. In fact, manufacturers who are able to prove the top end reliability and quality of their refurbished products – as those who attain the BSI Certified Refurbisher Kitemark can – often experience a **boost to their industry reputation**, since sustainable business practices are widely admired among consumers.

43% of consumers
Actively choose brands due to their environmental values¹¹

2 Offering product as-a-service

While the gas and electric industry is still very much centered around traditional, product-based delivery models of “buy, use, replace”, there is increasing momentum toward more service-centric methods.

Instead of selling customers a product (industrial light bulbs, for example), these models see them pay only for the benefit (lighting), while the provider retains responsibility for the maintenance and replacement of the products for as long as the customer pays their fee. When adopted correctly, it's a method that benefits everyone.



The relationship between provider and customer¹²



Benefits for the environment

- Less material waste, since providers are better placed to reuse and redistribute materials
- Lower energy consumption, since providers have a financial incentive to reduce it
- Products built to last rather than designed to break



Benefits for providers

- Ongoing custom as opposed to a one-off fee
- Reduces cost of raw materials through reuse and refurbishment
- Rewards for long-lasting design rather than short-termism



Benefits for customers

- No maintenance responsibilities
- Flexibility over their chosen options

BSI Kitemark Certified Remanufacturer and Kitemark Certified Reconditioner

BSI is fully committed to the principles and practices the circular economy brings forward. As such, we offer standards that can help your business align with them.

Supporting growing industry demand for circular economy principles, the new BSI Kitemark Certified Remanufacturer and Reconditioner based on BS 8887 are the first independently verified mark of trust schemes in the industry, giving remanufacturers the chance to prove the quality of their products to customers and remove any remaining apprehension about their performance. It also helps provide support for grading standards and testing of refurbished devices. For businesses of every size looking to get more from recommerce, the benefits of kitemark certification can be numerous, as many of our previous partners can attest¹³:



The above principles are an excellent start for any manufacturer looking to pave their way to circular practices, but there are many more available options. For more advice, or to look further into our Circular Economy services which include our **BS 8001 standards** as well as our world-famous Kitemark, go to [bsigroup.com](https://www.bsigroup.com).



Article 4

Meeting the product safety standards of the future

How to prepare for new regulation

How to prepare for new regulation

We know that for any organization within the gas and electric industry, compliance and safety are top priorities. In this article, we explore how regulation and standardization within the UK is changing and, importantly, what you can expect to see in the future as these regulations evolve to meet the technological and sustainable needs of consumers.

A time of change for product safety

Right now, organizations within the gas and electric sector are facing a variety of challenges, including:

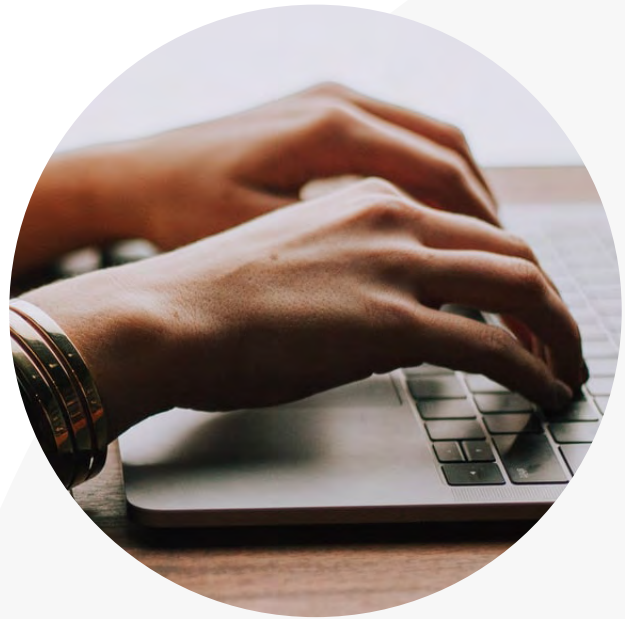
- A rapidly evolving digital revolution
- The immediate need for financial security
- A fluctuating regulatory environment
- Increased consumer demand for product security

For organizations across the UK, there's never been a more important moment to ensure the safety and compliance of your electrical and gas appliances. Not only can a faulty or unsafe product cost an organization financially through recalls and fines, but it can destroy reputations and most importantly have devastating consequences on its victims.

Over the past 18 months, many businesses have been experiencing a period of financial difficulty. As they look to recover resiliently from the pandemic's impact while navigating a new, post-Brexit terrain, they simply cannot afford the repercussions of an unsafe or non-compliant product. That is why the pressure is on for product manufacturers, installers and procurement professionals to publicly demonstrate their commitment to product safety.

In order to do this, as well as navigate the other challenges stated above, leading organizations are using standards and third-party certification to help future-proof their products and ensure they're as secure and safe as possible – particularly when there are gaps in the regulations.

But where do these gaps in regulation exist? And what can your business do to caveat them? We start by exploring the UK's current legislative landscape.



“We’re at the beginning of a new macro-economic cycle, which has been accelerated by Brexit and by Covid. Regulation can help to define a new contract between society and government.”

– Martin Townsend,
Global Head of Sustainability
and Circular Economy, BSI

Regulation in the UK

The UK has long been at the forefront of safety regulation, with strong core legislation that has for years run adjacent to, and in line with, EU practices. There are a great many historical regulations that underpin the industry, including the following:



The Health and Safety at Work Act

1974

The Health and Safety at Work Act, 1974:

Providing legal duties for companies and workers towards employees, colleagues and the general public.

The Consumer Protection Act

1987

The Consumer Protection Act, 1987:

Designed to help safeguard consumers from products that don't reach a reasonable level of safety.

The Gas Safety (Management) Regulations

1996

The Gas Safety (Management) Regulations, 1996:

Applying to the conveyance of natural gas (methane) through pipes to domestic and other consumers.

The Electrical Equipment (Safety) Regulations

1974

The Electrical Equipment (Safety) Regulations, 2016

A guide for businesses placing electrical equipment products on the market in Great Britain.

But as we know, times are changing. Though the basis for regulation in the UK is strong, a decade of innovation and digital upheaval has seen new products enter the market without new compliance measures being introduced by the government. For example, two of the biggest trends set to upheave the gas and electric industry over the next five years are smart appliances and hydrogen-fired appliances.

Top industry trends to watch



With both of the above products relatively new to the market, and still innovating rapidly, neither has yet had sufficient safety legislation passed. So, while we wait for and call upon the EU and UK government to fill the gaps in their regulations to ensure IoT and hydrogen products



are covered, we're sharing with you the industry standards that can help you remain compliant and safe. That way, when regulations do come into effect, you'll already be one step ahead of your competitors, with a reputation as an innovative, proactive, trustworthy manufacturer.

1 Trend Smart appliances

Heaters, lights, boilers, AGAs – smart innovation is happening with every kind of home and industrial appliance, **making everyday life more convenient and more sustainable for users.** But the risks associated with connected devices, particularly those around security, privacy and safety, can make it difficult for manufacturers to build trust in new products and services.

There is currently little in the way of legally binding legislation, but things are moving forward. In 2018, the UK government published their Code of Practice for consumer IoT security, which sets out essential guidelines for the safe use of IoT devices, and in 2020 strengthened security legislation through binding law with three rigorous

“Our new law will hold firms manufacturing and selling internet-connected devices to account and stop hackers threatening people’s privacy and safety.”

– Digital Minister Matt Warman, January 2020

security requirements surrounding device passwords, vulnerability reporting and security updates. These are a sound start, but with the necessary further legislation unlikely to come in the near future, standards can act as the ideal guide to further security and risk mitigation.

ETSI EN 303 645 – The leading standard for IoT devices

Built as a baseline for internet-connected consumer devices, this is the standard that forms the basis for the UK government's own Code of Practice, and which sets out 13 provisions for the security of IoT devices and their associated services. As a guideline, it presents an achievable, singular list of targets for manufacturers and IoT stakeholders to attain, including:

- Password security
- Software updates
- Personal data handling
- Vulnerability reports



In doing so, **ETSI EN 303 645** offers an excellent set of guidelines by which manufacturers can build security, safety and – in turn – business resilience into the smart products they design.

BSI testing, verification and kitemark certification services are built specifically around the above 13 guidelines, so if your business is serious about the above, **we're here to help.**

Trend 2

Hydrogen-fired appliances

For the UK gas industry, hydrogen is coming to represent the future. It's a sustainable, emission-free alternative to natural gases that, in the long run, will also be ecologically friendly to produce. Which is why UK usage is expected to increase from 0.7 million tonnes in 2020 to between three and 19 million tonnes in 2050¹⁴. No wonder innovative manufacturers and suppliers are coming to recognize its potential in the market, and the government-funded Hy4Heat program has recently announced the building of the UK's first homes with household appliances fueled entirely by hydrogen, in Gateshead¹⁵.

As of yet, there is very little legislative structure in the UK that applies specifically to hydrogen, with most relevant regulations derived from the broader "Gas Act"

of 1986. But naturally, the more usage increases, the more that is likely to change, especially considering that hydrogen has a significantly higher flame speed, greater flammability range and is likely to burn at a higher temperature than natural gas.

With hydrogen rising up the UK's industrial agenda, BSI calls on the government to implement greater legislation into the nation's hydrogen strategy, and we're not alone – trade bodies such as RenewableUK, the UK Hydrogen and Fuel Cell Association, and the British Hydropower Association have all done the same.

Until change does happen, manufacturers can set their sights on a new and highly relevant standard...

PAS 4444 – The new standard for hydrogen or dual-fueled appliances

Built by BSI in support of the UK's energy decarbonizing targets, these standards set out principles on functionality safety, installation, operating and servicing requirements for their hydrogen-fueled and hydrogen and natural gas dual-fueled or converted appliances, including boilers, cookers and fires. They operate as an excellent guideline for any manufacturers hoping to build future compliance into the design of such appliances.

BSI: Guiding future compliance

The above are just two of a number of trends that promise to transform the gas and electric industry for years to come. Over many years, partnering with countless organizations, BSI have made standards the basis of our work – because we know they build good business not only for the present, but for the future, too.

To speak to BSI about how we can help, contact energy@bsigroup.com



bsi.



Article 5

Leading the charge:

Three electrical and lighting innovations driving the UK's sustainable future

Three electrical and lighting innovations driving the UK's sustainable future

The government sees innovation as fundamental to reaching its ambitious sustainable goals. Ranked fourth in the World Intellectual Property Organization's Global Innovation Index 2020¹⁶, and having publicly set out the ambition of becoming the most innovative nation in the world, the UK has established a business environment that celebrates sustainable innovation and revolution. For organizations within the electrical appliance and lighting industries, this represents an enormous opportunity.

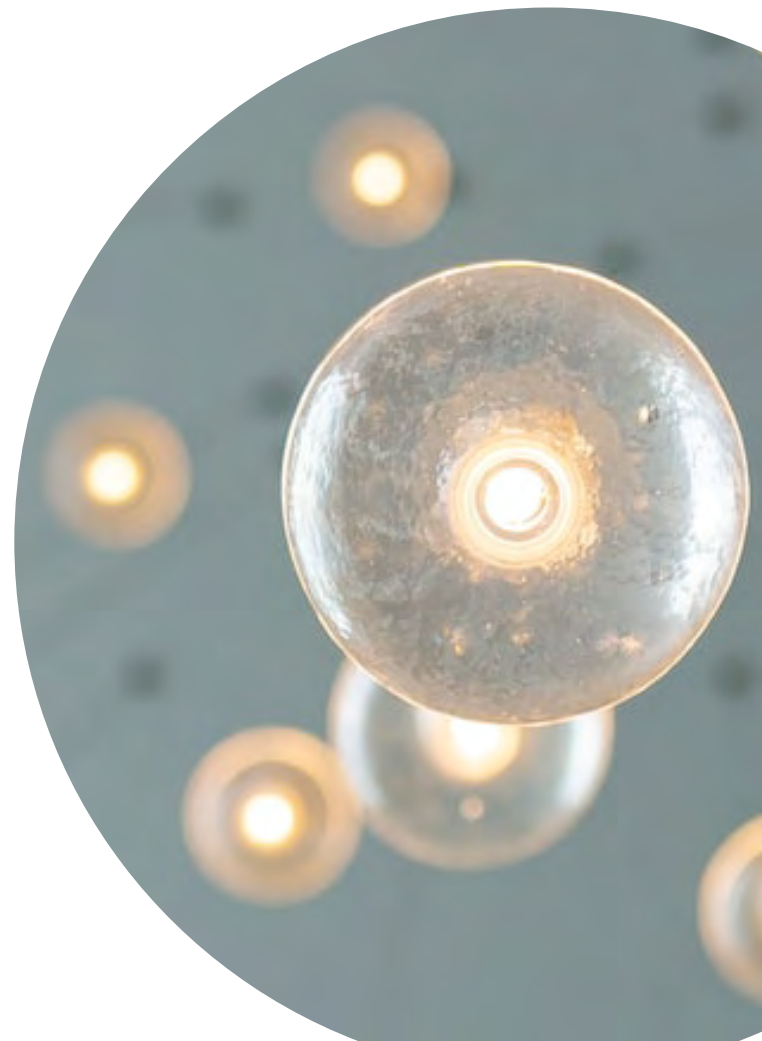
“The UK will be home to pioneering businesses, new technologies and green innovation as we make progress to net zero emissions, laying the foundations for decades of economic growth.”

– Boris Johnson,
UK Prime Minister, April 2021

The UK's commitment to the UN Sustainable Development Goals

Due to the immediacy of the threats involved, climate action might be the highest profile of the sustainable commitments agreed to by the UK. But, in reality, it is one out of 17 such goals, all interlinked and paving the way toward a sustainable, prosperous world. Having played a central role in formulating and adopting the UN SDGs in 2015, and reaffirmed its commitment through 2019's Voluntary National Review, the UK has maintained sight of these goals, for which innovation will play a crucial factor.

So which goals can the electric and lighting businesses have most of an impact in? And what recent innovations are helping the UK move forward with them? Below, we highlight three key commitments, and the thriving innovations that manufacturers have adopted to help achieve them.



The goal: Good health and wellbeing

Designed to ensure good physical and mental wellbeing for all, this goal focuses on healthcare but remains interwoven with goals around climate change, sanitation, economic/ social equality and more.

The innovation: Wellbeing designed lighting

The link between lighting and wellbeing may not be an immediate one, but dig deeper and it becomes quickly clear. The average UK citizen spends **90% of their time indoors**¹⁷, and the adverse health effects of artificial light have long been identified, spanning our eyesight, our mood and even our production of hormones. Which is why a new and powerful trend in the lighting industry – wellbeing designed lighting – has begun to gain serious traction.

How it works

Made possible by the spectrum tuning allowed by modern LEDs as well as smart functions and AI learning, wellbeing designed lighting changes its output throughout the day, minimizing unnatural light and giving a more natural, human-centric experience. Adjustments are made on an ongoing basis, varying:

- **Light intensity, fading up as the day approaches midday, and down toward evening**
- **Distribution, adjusting where the light comes from**
- **Color, delivering blue light in daytime and warm light in the evening**
- **Duration, ensuring a more natural span to our light exposure**



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The market opportunity

While already gaining popularity in workplaces throughout the UK, there is an undoubted opportunity in the home space – particularly with the pandemic having vastly increased remote working habits. By targeting their products toward these sophisticated, wellbeing-designed principles, lighting manufacturers will no doubt be able to align themselves with the UK's sustainable future, improving reputation and complying with future market demands.

The goal: Clean water and sanitation

Designed to ensure sustainable water management and availability for all, this goal is fundamentally global. In the UK, where water and sanitation are currently widely available, the priority for this goal lies in water conservation.

The innovation: Domestic ultrasonic cleaning

Water conservation is becoming a more and more pressing global issue, and yet in the UK the average household is still consuming **349 liters per day, 14% of which is taken up through the washing of clothes and kitchenware**¹⁸. Numerous eco-friendly options for bringing that number down have arisen, and among them – an old, repackaged innovation but an interesting one nonetheless – has emerged: ultrasonic cleaning.

How it works

Unlike virtually every other similar appliance on the market, ultrasonic washing machines are able to clean laundry or dishes (or both) using little to no water. They do so by using ultrasound to agitate a small amount of fluid – either water or solvent – and causing it to disperse microscopic vacuum bubbles toward the item, imploding and displacing dirt and contaminants. It is a technique that has been used for decades within many industries, but which has found new popularity in domestic laundry.



The market opportunity

Again, the major opportunity to be had lies with domestic appliances. Ultrasonic devices have been seen as an outdated fringe option for decades, but have seen a makeover of late, with audiences appreciating their use of both less water and less electricity. It's becoming a technology with real market relevance, but one that has not yet seen mainstream success. New, more user-friendly iterations are sure to come.

The goal: Affordable and clean energy

Designed to ensure access to affordable, reliable, sustainable and modern energy for all, this goal ties environmental goals together with societal ones, working toward a greener, fairer world.

The innovation: Smart, Wi-Fi-enabled radiators

The UK's electricity generation grows greener each year, with close to **50% expected to derive from renewable sources by 2025**¹⁹. Because of this, emphasis has been placed by many manufacturers to move – where possible – from gas-powered appliances to those requiring electricity. While gas central heating remains the most popular option, comprising **85% of UK households**²⁰, their electric rivals have become more and more competitive. Among them, smart, Wi-Fi-enabled radiators are staking their claim for a futuristic approach to heating.

How it works

Depending on the brand and model, smart radiators are capable of a number of energy-saving capabilities, as well as making for a more intuitive customer experience. By interoperating with fellow smart home appliances, thermostats and phones, they boast features such as:

- **Real-time energy consumption monitoring**
- **Motion sensors to tell if someone is in the room, or if a window is open**
- **Data analysis and self-learning features to cater to the user**



The market opportunity

As with many smart devices, smart radiators illustrate an industry that is moving forward. Interoperable, intelligent appliances are making their way onto the market in all shapes and sizes, and those manufacturers who can identify and inhabit a spot in this new space can take advantage of some key opportunities.

The need for standards within innovation

Standards and accreditations are more important for innovative manufacturers and products than any other since they serve to legitimize features that the market and its consumers may be unfamiliar with. Having worked in partnership with many of history's most innovative and groundbreaking brands, BSI have extensive experience of doing just that. **To find out more about innovation standards, head to [bsigroup.com](https://www.bsigroup.com).**



Article 6

Seeking new markets:

Your global opportunity map

Your global opportunity map

No UK manufacturer is untouched by the effects of Brexit, and amid the changes, few in the gas and electric sector can doubt that there have been negatives. The loss of frictionless EU market access has been a large blow for countless organizations, many of whom had built their business models around tariff-free trade. Add that to the new UKCA marking and the short timeframes involved – manufacturers must ensure conformity by January 2022 in order to continue trading in the UK – and it's clear how many UK businesses face a time of great uncertainty.

But with uncertainty comes opportunity. The UK's break from EU membership has opened up a whole world of trade possibilities, and actions are already in place to maximize our export potential. As recently as March 2021, the creation of four new major trade and investment hubs was announced in Edinburgh, Cardiff, Belfast and Darlington, designed to enable exporters to have a direct feed into UK trade policy while boosting their export potential in new, global markets.

As Trade Secretary I see the world is waiting. The Australians, the Americans, the Kiwis, the Japanese – they all want to begin negotiations and forge new relationships that will open up new markets for British businesses.”

– Liz Truss, UK Trade Secretary

So, which markets offer opportunity right now? And what do innovative companies looking to export sustainable gas and electric products need to do to access them early, before the UK's new trade potential begins to realize itself?

With our expertise in global standards, BSI is ideally placed to help organizations grow their market access worldwide. Below, our global opportunity map will take you through a number of labels and certification standards required to access some of the world's most attractive markets, and how to meet these specifications, with the help of BSI.



Market: The EU

Brexit may have dampened the appeal, but the European Union is still the world's largest trading block, consisting of some 500 million consumers. As such, it remains a large priority for thousands of UK-based manufacturers.

The CE Mark

UK manufacturers applying CE mark supported by UK based approved body stopped being accepted from 1 January 2021. Goods coming to the UK bearing CE marking supported by EU Notified body are valid until 31 December 2021. Gas burning products require third party certification, where Low Voltage Directive products are based on self-declaration.. However, for those organizations whose products are not yet coming to market, and which plan on access to the EU, it will be crucial to understand how to navigate this regulatory landscape.





Market: Australia and New Zealand

Post-Brexit, much has been made of the UK's intentions to strengthen trade ties with Australia and New Zealand, and talks continue about a possible Free Trade Agreement between one or both nations. Regardless, comprising some 30 million high-GDP consumers, and having already earned the UK more than \$13 billion in exports in 2019 alone²¹, it's a market that deserves exploring.

The way in



For gas appliances

As in the EU, gas regulations require independent certification from an outside body, in the form of the Australia Gas Safety Certification. This is the certification that covers both domestic and industrial gas appliances, as well as components. **As an approved certification body for the Australian and New Zealand Gas Technical Regulators Committee (GTRC), BSI can carry out the required testing for issuing the relevant JAS-ANZ accredited gas certification to your products.**



For low-risk electrical appliances

Imports for both countries require manufacturers to prove the electrical safety of their products based on the general electricity safety standard (AS/NZS 3820) for low-risk electrical appliances. **With the weight of experience in testing and certifying such products that BSI has, we can help your business do so responsibly, guarding against the possible de-registration threatened by Australia's Electrical Equipment Safety System (EESS).**



Market: The UAE

A rapidly growing, future-thinking economy, the United Arab Emirates (UAE) is the UK's biggest Middle East export market, with exports to the nation in 2018 totaling £10.5 billion²². In Dubai and Abu Dhabi, it boasts two vastly prosperous cities with some of the world's most ambitious plans for sustainable, smart growth – a truly exciting proposition for exporters with industry-leading, sustainable appliances.

The way in



ESMA certification

Gas and electric products imported into the UAE market are required to gain certification from the Emirates Authority for Standardization and Metrology (ESMA), which follows The Emirates Conformity Assessment Scheme (ECAS)'s measures, designed to protect people, animals and property and the planet – including safety, energy efficiency and environmental requirements. As a Notified Body for ESMA, and having assisted them in the creation of their certification schemes, BSI is uniquely capable of supporting those manufacturers and traders in making their applications for the following products:

- **Low-voltage electrical equipment and appliances**
- **Lighting products**
- **Electrical water heaters**
- **Gas hobs and cooking ranges**

For any market: The BSI Kitemark

Though market-specific certifications are crucial, there is also great opportunity to be had by branding your product with a globally recognized mark of excellence – of which there are perhaps none more recognizable than the distinguished BSI Kitemark. First registered in 1903, our mark confirms that a product has been thoroughly tested and checked,

time and again, and proven to meet a recognized industry standard or need. In a time of change for the UK's gas and electric sector, with the trade plans and possibilities still up in the air, that mark of excellence offers manufacturers true value, no matter which global markets they wish to access.

Conclusion:

Make partnership the next thing on your list

Whether you're looking to access a new market, seeking to make new, innovative sustainable products or anything else, BSI boasts the global network and industry-specific expertise to help your UK business thrive in the gas and electric sector.

By enhancing the safety and scalability of your products and mitigating against the risks of backwards steps such as product recalls and damaged brand reputation, our world-class gas and electrical appliance testing and global market export solutions can help your products light the way toward an innovative, sustainable future.



By Royal Charter

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To speak to our team about our gas and
electric offering, contact us today:
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