



ENERGY EFFICIENCY GUIDE

Reducing operational costs
for Kent's growers and
food producers



A collaboration between:





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Executive Summary

Protecting Profits through Energy Resilience

In an era of unprecedented price volatility, the ability of Kent's food and drink sector to manage energy consumption has shifted from an operational preference to a prerequisite for survival. Improving energy efficiency is now essential for business continuity, particularly as electricity and gas prices rose by 75% and 120%, respectively, between 2021 and 2024.

More recently, the US-Israel attacks on Iran further destabilised the energy market. Oil and gas prices increased by 50% and 90%, respectively, in less than a month (28th February – 24th March).¹ This guide offers a practical roadmap to help you baseline your usage, cut consumption, and move towards long-term energy independence.

¹ Sky News, UK firms hit as Iran war delivers biggest costs rise in 44 years

The Impact of Rising Energy Costs on Food Manufacturing

From 2021 to 2024, electricity and gas prices rose by 75 and 120%, respectively.² As the biggest consumers of gas and the second biggest consumers of electricity in the UK,³ food and drink businesses are disproportionately affected by energy price rises. 60% now report being affected by rising energy costs; a higher proportion than in any other sector.⁴

The food system also produces a third of human-driven greenhouse gas emissions.⁵ Imports and domestic production account for the majority of food system emissions, but post-farm gate emissions remain significant (Figure 1). In the UK, food and drink manufacturing alone produces almost 10 million tonnes of CO₂ equivalents annually.⁶

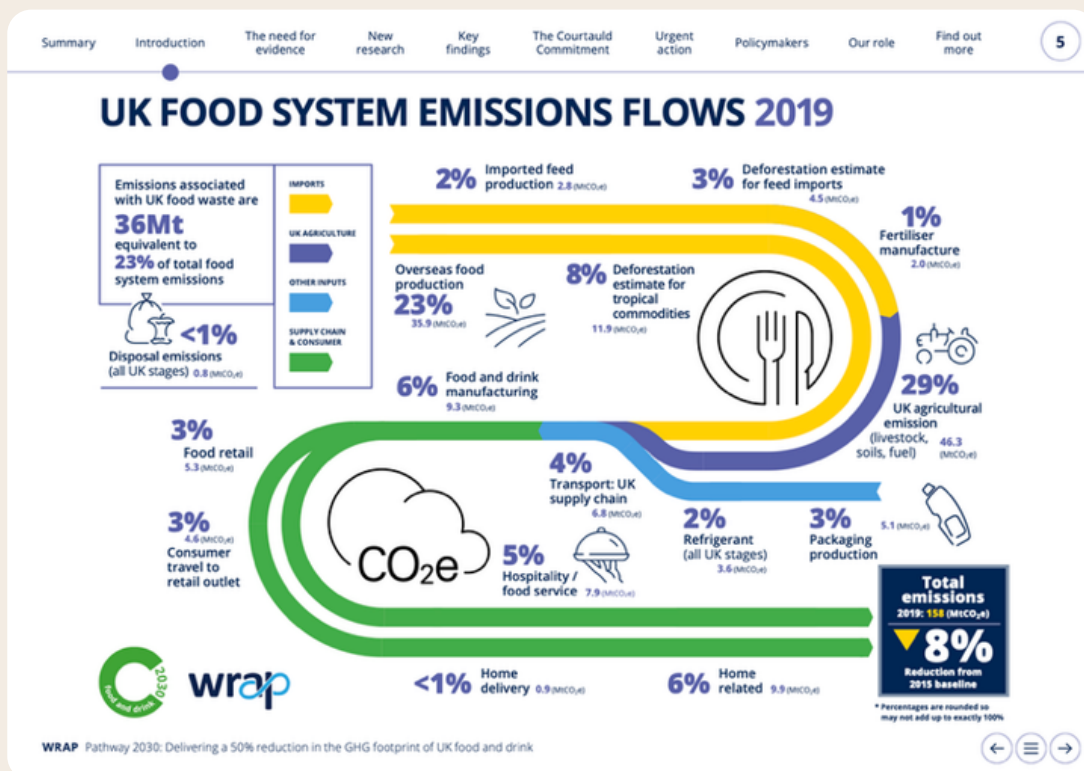


Figure 1. The flow of greenhouse gas emissions across the UK food system, totalling 158 Mt of CO₂e in 2019. It highlights that while UK agriculture accounts for 29% of emissions, significant impacts also stem from the various stages of the supply chain, including manufacturing, transport, and hospitality. Source: WRAP, *Pathway 2030: Delivering a 50% reduction in the GHG footprint of UK food and drink (Summary Report)*.

² Office of National Statistics, *The impact of higher energy costs on UK businesses: 2021 to 2024*

³ Uswitch, *UK business energy statistics*

⁴ Office of National Statistics, *Recent challenges faced by food and drink businesses and their impact on prices*

⁵ Nature Food, *Food systems are responsible for a third of global anthropogenic GHG emissions*

⁶ WRAP, *Pathway 2030: Delivering a 50% reduction in the GHG footprint of UK food and drink (Summary Report)*

Capitalising on Consumer Demand for Sustainable Food

As consumer demand for sustainable products grows, with 51% of the public supporting sustainably produced food (Figure 2), and the environment representing the fastest-growing driver of choice at 16%,⁷ improving energy efficiency offers a rare win-win. However, the narrow margins typical of the sector remain a significant barrier to change.

We know many Kent and Medway businesses want to operate more sustainably but are stalled by the perceived high cost of green infrastructure. That is why previous Growing Green participants started with small, strategic investments that grew into inspiring, long-term achievements.

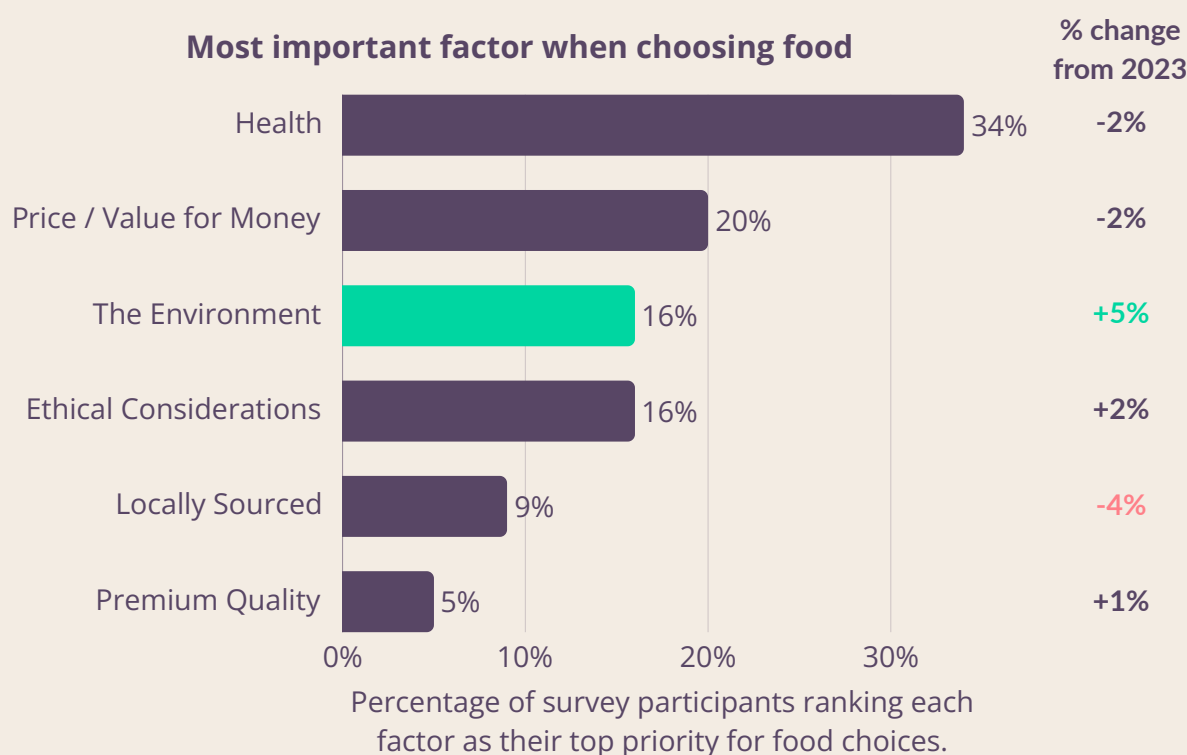


Figure 2. Primary Drivers in Consumer Food Choice. This AHDB chart shows the most important factors for consumers when choosing food. The environment saw the most significant growth compared to 2023, rising by 5% to reach a total of 16%. Source: AHDB, [Environment and buying sustainably drives consumer focus](#).

⁷ Food Standards Agency, [Food System Strategic Assessment: Trends and issues impacted by changes in consumer attitudes](#)

Your Roadmap to Practical Energy Efficiency

This guide provides a solution-oriented roadmap towards greater energy efficiency for your business. Inside, you will find information on how to conduct an audit of your business's energy use. We also include a checklist of low-cost interventions and a series of inspiring case studies based on successful Growing Green projects.

Growing Green was a collaborative sustainability training and small grant programme, developed collaboratively between **Growing Kent & Medway** and **Low Carbon Kent** (Kent County Council).⁸



Overcoming Barriers to Green Investment

We recognise that most UK small businesses are already striving to become more sustainable; 94% have already taken at least one step to reduce their environmental impact.⁹ However, we also know that thin margins and a lack of practical information remain significant barriers. This guide exists to break down those barriers.

Since 2021, Growing Kent & Medway has worked with hundreds of founders who are constantly asked to do more with less. We understand that pressure, which is why we lead with low-cost, practical solutions you can implement today. For those ready to go further, our in-depth case studies offer a blueprint for long-term energy efficiency.

⁸ Growing Kent & Medway, *Reducing the Carbon Footprint of our Food System in Kent and Medway*.

⁹ British Business Bank, *Smaller businesses and the transition to net zero*

Energy Strategy

Practical Steps for Food Businesses

Some sustainability changes require extensive investments of time and money, presenting a significant barrier to positive change for many horticultural and food businesses.

Fortunately, energy efficiency offers a unique opportunity to grow a sustainable business using resources you have already paid for, while generating entirely new cost savings.

However, the golden rule of energy strategy is simple: optimise before you electrify. It is far more sensible to insulate a processing vessel or fix a compressor line than it is to install expensive solar panels to power a leak. The goal of this section is to help you isolate and eliminate these hidden baseline losses first, allowing you to run a streamlined, low-cost operation that immediately buffers your business against volatile utility markets.

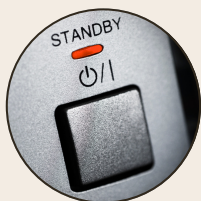
The Power of the Audit

Demystifying an energy audit comes down to moving away from abstract carbon footprints and focusing on physical consumption, machinery run-times, and money. For a small food business, a practical audit requires just three steps over a standard production week:



1. Map the Decision Points

Identify exactly where electricity, gas, or heat change hands or states within your facility and wider processing lines.



2. Log the Losses

Quantify what is wasted at each point: whether it is tracking overnight standby use, spotting leaky door seals, or monitoring equipment left running unnecessarily.



3. Attach a Cost

Calculate where power is being lost and exactly how much money is spent running that machinery, including peak-rate bills and standing charges.

Seeing the true financial value of what spikes your bills or where energy is wasted provides the exact data needed to reduce power loss, meet supply chain sustainability requirements, and protect your margins. Food and drink businesses stand to benefit immensely from this process because sector energy use is generally high cost and often preventable.

Immediate Energy 'Easy Wins'

Before looking for complex secondary uses, implement these immediate, low-cost process adjustments from our sustainability checklist to stop heat and power from being lost in the first place:

- ***Manage Ambient Controls***

Review operational and energy supplier data to adjust your automated facility thermostats. Shifting your indoor heating or cooling settings down by just 1°C is completely free and can lower your annual building energy bills by 3% to 5%. Cleaning your facility ventilation filters monthly also keeps systems running freely without pulling excess power.



- ***Maintain Refrigeration Seals***

Energy waste is often just a symptom of poor climate control. Cleaning or replacing your cold room or fridge door gaskets prevents cold air from leaking. Replacing a split or damaged door seal is cheap and easy. This simple fix can reduce an individual appliance's energy use by up to 25%.



- ***Optimise Building Infrastructure***

Reduce electricity use by swapping halogen tubes for LED lighting arrays. High-efficiency bulbs deliver instant energy savings of up to 80%. Adding motion sensors in low-traffic storage bays ensures lights are never left running too.



Scaling Up: Turning 'Easy Wins' into Long-Term Profit

Tackling these initial process-driven steps is about more than immediate savings; it is about building the financial confidence to pursue larger sustainability projects. Many of our Growing Green businesses have used this gradual approach to great effect.

For example, Jon and Jodie Mills, co-founders of Canterbury Brewers & Distillers, started with a simple heat pump to redirect waste heat from their distillery to their restaurant. This initial success inspired them to audit their entire site, leading to several projects culminating in a purpose built, distillery waste-fed mushroom farm and retail outlet, generating entirely new revenue streams for the business.



Kent Success Stories

Examples of Energy Efficiency Projects

Communigrow Case Study:

Enhancing Community Food Growing with Portable Power



The Challenge: Navigating Energy Scarcity in Off-Grid Horticulture

Communigrow is a food education and horticultural charity based in East Malling, but its 2.4-acre off-grid site faced significant operational hurdles due to a lack of reliable power. Before receiving support, they lacked even the basic ability to boil a kettle for their volunteers: relying instead on their "fortitude" during cold and wet weather.

Educational outreach was restricted to the main cabin area on-site or required the dangerous use of trailing extension cords across the fields. This limited their ability to deliver diverse "field-to-fork" sessions, especially off-site, and excluded community members who needed, for example, refrigerated storage for vital medication.

The Innovative Idea: Deploying Portable Solar Energy Hubs

Using their first Growing Green grant, Communigrow installed solar panel equipment, replacing the petrol generator they had used previously. In 2025, their Growing Green grant was used to enhance their initial investment. They purchased a mobile battery pack, solar panel, and storage for the excess PV generated from the off-grid solar array.

The innovation lay in its flexibility; the setup enabled them to run induction hobs and educational technology completely off grid. This "liberated" their services, allowing them to advocate for renewable energy while delivering outreach in urban housing estates or remote woodlands without a plug.

The Results: Transforming Site Accessibility and Outreach

The project successfully transformed site accessibility and volunteer retention by finally providing basic comforts like hot tea and medical refrigeration. Volunteers now enjoy a warm environment during winter tree-planting days, while polytunnels can be lit up to extend usable working hours.

Beyond site improvements, the charity now delivers carbon literacy training and "field-to-fork" sessions from previously inaccessible areas like their yurt. Despite equipment delays, the system has significantly boosted its overall storage capacity and reduced its reliance on a struggling primary solar array.

Proven Impact: Quantifying Social Value and Community Reach

Outcome
<i>For charities like Communigrow, the return on investment is found in expanded community reach and volunteer wellbeing rather than commercial profit. By adopting portable renewable power, they have liberated their educational "field-to-fork" sessions from the grid, enabling outreach in diverse locations ranging from housing estates to forest schools.</i>

See it Differently: Communigrow Video Case Study



Victoria Farm Case Study: Renewable Infrastructure for Agricultural Resilience



The Challenge: Bridging the Nighttime Solar Mismatch

Victoria Farm Ltd, a family-owned fruit grower in Hadlow, faced a significant energy mismatch. Despite having large solar arrays, they could not store enough energy during the day to power essential operations at night. This left them reliant on expensive mains electricity for their modern packhouse and cold storage facilities.

The business struggled to utilise its self-generated power for nighttime lighting and vehicle charging. Excess solar energy produced during the day was fed back to the grid rather than supporting their infrastructure. They needed a solution to bridge this gap and stabilise their rising operational energy costs.

The Innovative Idea: Integrating Smart Battery Infrastructure

With support from Growing Green, the farm integrated four high-capacity batteries into its existing solar PV system. This expansion provided approximately 40kWh of additional storage, allowing them to capture surplus solar power. A new smart energy management system was installed to track usage and optimise performance.

This technology provides real-time data insights, allowing the farm to make informed decisions about energy consumption. The system specifically targets nighttime cold storage and EV machinery charging using stored solar power. Staff training ensured the team could manage these new energy monitoring and battery technologies effectively.

Adding 40kWh of solar storage is a significant upgrade. To put it into perspective, 40kWh is enough energy to provide a full charge for a small electric car, a full work shift for an electric forklift, or power a typical UK household for over five days.

The Results: Grid Independence and Sustainable Fleet Management

The installation was completed quickly, immediately reducing the farm's reliance on the National Grid. They now use stored renewable energy to power high-demand cold stores and charge their fleet of electric vehicles.

This has lowered their carbon footprint and improved the overall sustainability of their Hadlow site. This resilience provides a platform for future expansion, including a planned transition to electric tractors. By securing its own energy supply, Victoria Farm has protected itself against volatile energy price spikes.

Proven Impact: Energy Independence and Bottom-Line Savings

Aim	Outcome
<i>Without Growing Green</i>	<i>Annual ROI: 20%–60%; Payback Period: Approximately 2–6 years.</i>
<i>With Growing Green</i>	<i>Annual ROI: 40%–120%; Payback Period: Approximately 1–3 years.</i>

Note: These ROI figures reflect estimated annual energy cost savings of £2,500 to £8,000. The strategic value is even higher, as it enables a transition toward the full electrification of farm equipment and secures long-term energy independence.

Ramsgate Brewery Case Study: Decarbonising the Brewing Process



The Challenge: Decarbonising Energy-Intensive Brewing Traditions

Ramsgate Brewery is a vibrant, award-winning craft brewery based in Broadstairs, committed to net-zero operations. A significant hurdle in their sustainability journey was the brewhouse, where the traditional process of boiling wort – the fermentable liquid produced by steeping malted grains in hot water – is notoriously energy-intensive.

Conventional brewing requires sustained, high-energy boiling, typically powered by kerosene, a fossil fuel also known as paraffin, which results in a substantial carbon footprint. They needed a technical solution that would allow them to cut these fuel costs and emissions without sacrificing the distinctive quality of their Kentish ales.

The Innovative Idea: Trialling "Simmer & Strip" Technology

With support from Growing Green, Ramsgate Brewery trialled a groundbreaking brewing method that challenges the traditional, energy-intensive "boil" phase. While conventional brewing requires sustained, high heat to prepare the ingredients, this new approach uses a refined technique to reach necessary quality benchmarks much more efficiently.

By achieving the same high-quality results in a fraction of the time, the brewery can significantly lower its fuel consumption while protecting the distinctive flavour of its award-winning ales. This project proves that high-standard production is possible with a markedly smaller carbon footprint.



The Results: Kerosene Savings and Industry-Leading Replication

The trial was a success, with early data showing kerosene savings of 15–20% and no loss in beer quality. The project progressed ahead of schedule, with nine trial brews already passing quality control and entering the trade.

By mitigating the financial risk of trialling unproven technology at this scale, the brewery has established a replicable model for other small producers. They are now collaborating with Nottingham University to further refine the system, ensuring long-term fuel savings and a smaller environmental impact for the whole brewing industry.

Proven Impact: Fuel Cost Reductions and Process Efficiency

Aim	Outcome
<i>Without Growing Green</i>	<i>Annual ROI: 20%; Payback Period: Approximately 5 years.</i>
<i>With Growing Green</i>	<i>Annual ROI: 40%; Payback Period: Approximately 2.6 years.</i>

Note: These figures are based on estimated fuel savings of £2,000 per year and a projected annual energy saving of 36,000 kWh. The strategic ROI is even higher, as the project successfully cut emissions in a notoriously difficult operational area.

See it Differently: Gadd's Brewery Video Case Study

Prior to their Growing Green grant, Ramsgate Brewery installed an innovative carbon dioxide capture and re-use system in their bottling and production operations. Watch to find out more.





Research and Support

for Kent Food Businesses

The energy efficiency breakthroughs featured in this guide were made possible by Growing Green, a collaborative training and grant programme. This initiative was funded by Growing Kent & Medway, a UKRI-funded innovation cluster supporting the region's horticultural and plant-based food sectors.

We partnered with Low Carbon Kent (Kent County Council) to deliver this programme. Established to help Kent businesses adapt to climate change and embrace the circular economy, their resources – including ISEP-accredited training and the Sustainable Business Toolkit – can help turn your energy-saving ambitions into a commercial reality.



Next Steps

How to Start Saving Energy

We hope the practical checklists and Growing Green success stories featured in this guide provide the necessary inspiration to transition your business's sustainability goals from operational burdens to a strategy for long-term independence. With energy prices ever increasing, efficiency and self-sufficiency could be your best bet to protect your bottom line.

Explore Further Sustainability Resources

Energy is a critical piece of the sustainability puzzle, but it is not the only one. If your initial audit suggests you have already secured the easy wins in energy management, or if you are looking to become more holistically sustainable, our other guides on Water Resilience and Waste Valorisation offer the same practical, low-cost blueprints. Shifting your mindset toward resource efficiency in one area often reveals untapped potential in others; these guides are designed to help you capture that value.

To support your next project, you can tap into the regional expertise and funding streams that make Kent and Medway leaders in sustainable horticulture and food manufacturing.

Growing Kent & Medway



Visit our website for further crop-specific reports, technical expertise, and research facilities: or contact us directly to connect with our network for specific support.



Low Carbon Kent (Kent County Council)



Visit their website to access the Comprehensive Business Sustainability Toolkit and explore success stories from the LoCASE project.



**KENT & MEDWAY
Growth Hub**
Your gateway to business
growth

Kent & Medway Growth Hub

Visit their website and social media channels to navigate the local funding landscape and identify grants for sustainability projects.



**UK Research
and Innovation**

UK Research and Innovation

Growing Kent & Medway is funded by UKRI's Strength in Places Fund to invest in sustainable innovation within the horticulture and food sectors across Kent and Medway.



Concluding Remarks

Improving your energy efficiency is more than an environmental box-ticking exercise; it is a vital strategy to buffer your business against extreme market volatility and achieve true operational independence. By optimizing your consumption today, you secure the capital and operational confidence required to innovate tomorrow.

This guide was conceptualised, researched, written, and designed by Dr Dominic Hill (Growing Kent & Medway), with practical energy strategy contributions from Richard Izzard (Low Carbon Kent).

Join the Growing Kent & Medway Ecosystem

Don't navigate the energy transition alone. Our innovation cluster bridges the gap between ambitious local founders, sustainable grant funding, and world-class scientific expertise to make clean business operations a commercial reality.

Take Action Today:

- Explore Your Options: If you have already secured the quick energy wins on your shop floor, expand your resource efficiency goals by viewing our companion Water Resilience Guide and Waste Valorisation Guide.
- Connect with Us: Visit growingkentandmedway.co.uk to join our 700-strong member network, access local funding, and protect your margins for the future.

THANK YOU FOR WORKING WITH US TO BUILD A
MORE RESILIENT, SUSTAINABLE, AND PROSPEROUS
FUTURE FOR THE KENT AND MEDWAY FOOD SYSTEM.

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