

Equipped for the Future

An action plan to facilitate greater uptake of
energy efficient catering equipment in foodservice



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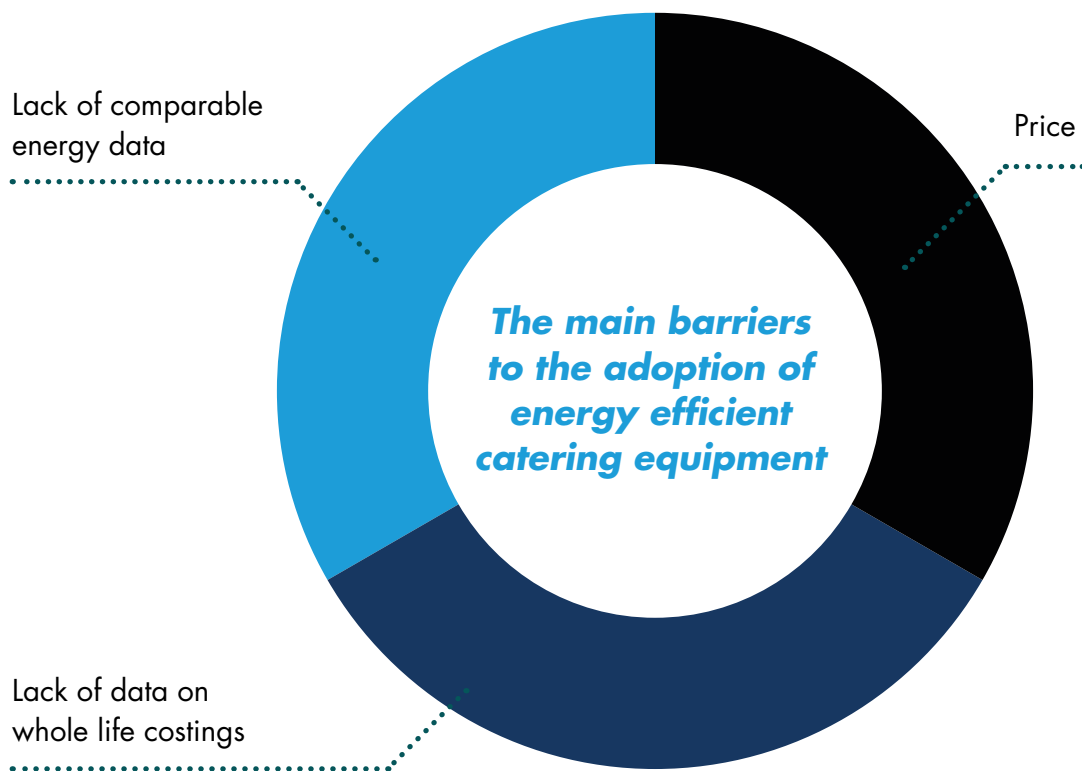
HOSHIZAKI

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Executive summary

The need: the case for action



Equipment plays a valuable role in the foodservice industry. It is responsible for a significant proportion of any commercial kitchens' energy usage, carbon emissions and operating cost. This is through energy use and the efficiencies offered in terms of maximising output and reducing waste.

One study calculated that 63% of the electricity consumption of public houses and restaurants was attributed to catering activities¹. Carbon Trust calculations indicate that the energy cost can be up to 45p per cooked meal². The UK catering industry could potentially save over a quarter of a billion pounds in energy costs every year³. This is through optimising kitchen equipment, improving equipment use and tailoring menu options.

Choosing sustainable equipment which is more energy efficient can present significant lifetime savings. Operators also report that the sustainability credentials of their suppliers are important and aid a reduction in a business's carbon footprint⁴.

But what is it that prevents some buyers from acting on this instinct to green their supply chain by choosing the most sustainable suppliers and equipment? And how can these barriers be overcome?

The solution: the Equipped for the Future action plan

This research answers the questions posed above. It identifies the barriers and outlines potential solutions which could facilitate the adoption of more energy efficient equipment.

It sets out clear action points and insights for **manufacturers/vendors, operators** and **government** to enable barriers, such as price, the lack of comparable energy data and whole life costings, to be overcome and, in some cases harnessed, to drive the greater uptake of energy efficient equipment in foodservice.

The Equipped for the Future Action plan: 30 second summaries

1 Manufacturers/vendors action plan:

- 1.1 **Focus on whole-life costing.** Whole-life costings provide the business case for investment in more energy efficient equipment by shifting the emphasis away from its current focus on purchase price. Equipment manufacturers, resellers and other vendors must therefore provide information on energy usage and lifecycle costings overtly and comparably, and operators must demand and utilise it.
- 1.2 **Focus on paybacks.** To make them more achievable to operators, the research revealed that manufacturers and other vendors need to set price points so that premiums are paid back within two thirds of the product lifecycle.
- 1.3 **Focus on functionality.** Functionality is a key purchasing criteria. Finding ways to demonstrate how an efficient option also meets the necessary functionality requirements provides a valuable sales hook for more sustainable products.
- 1.4 **Focus on reliability.** Reliability is vital to operators – providing warranty assurance in this regard could therefore be crucial to achieving sales.
- 1.5 **Link equipment to operators' sustainability strategies.** Operators with strong sustainability strategies are more likely to prioritise energy efficient equipment. Manufacturers and vendors can capitalise on this by demonstrating how energy efficient products could also help companies achieve carbon reduction targets.
- 1.6 **Bring stakeholders together.** For organisations that are still operating in silos, investing in relationships to bring stakeholders together to demonstrate the wider benefits of more sustainable equipment can be a key part of the salesperson's role.
- 1.7 **Target the budget holder.** Getting buy in with the right people can ensure investment in more sustainable equipment is not value-engineered out.

- 1.8 **Agree common energy consumption and costing data.** The industry is calling for comparable data. But whilst MEPS standards for cooling equipment are becoming increasingly stringent, an expansion in MEPS is unlikely outside of this category. This means manufacturers of equipment not covered by MEPS must come to a voluntary agreement to set their own standard configuration and testing parameters.
- 1.9 **Focus on innovation not incremental gain.** Operators are supportive of kitchen equipment innovations but feel that they lag behind other areas. This provides an opportunity for increased innovation and better communication of existing solutions.

2 Operator action plan:

- 2.1 **Smash through silos.** Barriers must be broken down so buyers are working together with energy management, asset management and any other relevant teams to ensure whole-life costings and savings can be incorporated into purchase decisions.
- 2.2 **Measure, then manage.** This approach is hugely effective at identifying whole life costings and building the business case for investment in more energy efficient equipment.
- 2.3 **Focus on working environment.** Identifying quantifiable improvements in the working environment as a result of investment in more sustainable equipment can help to demonstrate the case for investment.
- 2.4 **Demand energy efficiency and other whole life costings in tender documents.** Incorporating legally appropriate wording in tender documents would force manufacturers and vendors to make this information available so products can be more easily compared.
- 2.5 **Draw links between equipment and utility costs.** For contract caterers, specifiers and consultants, helping clients to quantify whole-life costs provides the opportunity to add value.
- 2.6 **Ensure staff are well trained and invested in equipment.** Staff must be well trained and feel responsible for equipment to ensure it is used appropriately, treated respectfully and is well maintained for optimum efficiency.

3 Government and industry action plan

- 3.1 **Government should introduce more incentives: foodservice should drive the agenda.** Government should make more use of tax breaks, such as providing easier access to the Energy Technology List (ETL) and the clearer linking of how efficient equipment meets overarching emission reduction targets to improve uptake. The foodservice industry must lobby and support this agenda.

The need: the case for action



Price is main consideration in half of equipment purchases



...said sustainability is important to their customers



...said the sustainability credentials of their suppliers was important



...of energy is used in the kitchen



energy cost per cooked meal



potential savings for UK catering industry through equipment and menu improvements

Equipment plays a valuable role in the foodservice industry, and it is responsible for a significant proportion of the industry's energy usage, carbon emissions and operating cost. This is through the energy it uses and the efficiencies it can offer in terms of maximising output and reducing waste. One study calculated that 63% of the electricity consumption of public houses and restaurants was attributed to catering activities⁵.

Refrigeration can account for 16% of catering's total energy consumption⁶ and account for 41% of the kitchen's daily electricity consumption⁷. The rest is taken up by fryers (13%), combination ovens (12%), grills (12%) and bains marie (9%)⁸. Carbon Trust calculations indicate that the energy cost can be up to 45p per cooked meal⁹. A Carbon Trust study from 2012 also calculated that 25% energy savings could be made on refrigeration by purchasing more efficient refrigeration equipment¹⁰. These savings are likely to be even greater today.

It is also estimated that the UK catering industry could save over a quarter of a billion pounds in energy costs every year¹¹. This is through optimising kitchen equipment, improving equipment use and tailoring menu options.

Cost is the biggest barrier to the purchase of energy efficient equipment

Choosing more sustainable equipment, which is more energy efficient, presents significant lifetime savings. Yet the industry still buys mainly on price. Around half of those interviewed for this research cited price as a primary consideration when purchasing equipment. This remains in line with previous Hoshizaki UK (formerly Gram UK) research which found that 56% cited price as their primary purchasing consideration¹².

In busy commercial kitchens where keeping the customer satisfied on a tight margin is paramount, it is unsurprising that the research also identified functionality as a primary consideration when purchasing new kitchen equipment. The research indicated that Brexit also appears to be having an impact. "Some companies who would invest in their estate are reining in new equipment spend," notes Kenn Tagg, Commercial Director, Space Group, "because Brexit is causing uncertainty." Brexit could also influence energy labelling, as this is currently covered under the EU Ecodesign directive.

However, sustainability concerns such as energy efficiency do play an important part in the decision-making process. The majority interviewed felt decisions were made based on an interplay of factors and were reluctant to single out just one main motivator. This included price, functionality, energy efficiency, a lack of comparable energy data and other sustainability considerations, such as water efficiency, waste or the refrigerant gas used.

Yet the research identified a value action gap. Whilst operators talked about many factors influencing decisions, the overriding sense from manufacturers and resellers was that, "when it comes to it, price is the biggest driver," as Steve Loughton, Director, UK & Ireland, Hoshizaki UK, observed. "Nevertheless, there is an awakening understanding of environmental impacts and sustainability concerns. Of course, if it costs the same, operators embrace it."

Operators tended to agree that price was certainly the main barrier to the uptake of more sustainable kitchen equipment. "We do look at how sustainable products are..." admitted Dennis Brewin, Head of Catering for the London Borough of Havering, "but we find it difficult because of the cost."

Yet in this research, there was universal agreement that the sustainability credentials of the operators and manufacturers themselves is important to their own clients and customers. There was also unanimous agreement that the sustainability credentials of an operator or manufacturer's own suppliers was also important.

The **Equipped for the Future framework** aims to bridge this gap by identifying how barriers such as cost and the lack of comparable energy data can be overcome to enable buyers to act on this instinct to green their supply chain and kitchens by choosing the most energy efficient equipment suppliers and product lines.

It identifies action points for each major stakeholder:

- equipment manufacturers/vendors
- operators
- government

This creates a roadmap to better and more responsible equipment purchasing patterns.

The solution: the Equipped for the Future action plan

1 Manufacturer/vendor action plan

KEY ACTIONS

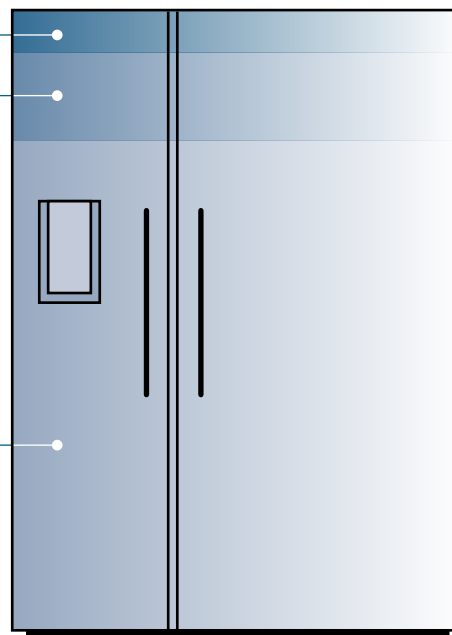
- 1.1 Focus on whole-life costing
- 1.2 Focus on paybacks
- 1.3 Focus on functionality
- 1.4 Focus on reliability
- 1.5 Link equipment to operators' sustainability strategies
- 1.6 Bring stakeholders together
- 1.7 Target the budget holder
- 1.8 Agree common energy consumption and costing data
- 1.9 Focus on innovation not incremental gain

1.1 Focus on whole-life costing

5% Maintenance

15% Purchase costs

80% Operating costs



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“The only thing that prevents me from buying more energy efficient equipment is cost.”
Pete Redman, Chef Director, Bartlett Mitchell

Whole-life costings provide the business case

The research revealed that purchase price is an important component of the purchasing criteria. Yet cost concerns and sustainability do not have to be seen as opposing considerations. If whole-life costs are incorporated into cost analysis, energy efficient equipment can usually be demonstrated to be more cost effective overall.

“Purchase price is often the start of a discussion rather than the product’s performance features, or the lifetime cost of the equipment,” explains Keith Warren CFSP, Director of the Catering Equipment Suppliers Association. “This is because most equipment is sold through dealer or reseller networks and their starting point for discussions can be: ‘What’s the list price and what’s my discount?’”. Energy saving features and other benefits can be lost because of the perceived need to keep capex as low as possible. For most commercial equipment, the lifetime operating cost far outweighs the purchase cost.

“This can become a complex area to explain,” notes Warren, “and it is best researched and understood by the manufacturer. However, the manufacturer may not be able to tell the customer this message directly because of selling through a supply chain.”

However, lifetime costings provide the business case for investment in more energy efficient equipment. Equipment manufacturers, resellers and other vendors must therefore provide information on energy usage and lifecycle costings overtly and comparably, and operators must demand and utilise it.

Whole-life costings are a game changer

Those operators who incorporate whole life-costings into their procurement process can clearly see the benefits of investing in more sustainable equipment. For some parts of foodservice, this is driving a swerve in focus from capital costs to operating costs.

“It’s hard to say what the primary consideration is when we’re buying equipment,” noted one senior procurement executive for a major national chain. “Price is part of it but isn’t the only factor - the efficiency of equipment is very important because you save money by using less electricity or water.”

“Some clients now look at lifetime costs,” says Kenn Tagg, Commercial Director, The Space Group. “They are a game changer. Most corporates write equipment off after five to seven years, depending on how busy the site is. But when they look at what the overall cost is, they can be taken aback at the analysis between different products or brands. For example, we were comparing some combi ovens so we put all the data for water, chemicals and electricity used into a spreadsheet calculator

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we had created. Over five years, one of the combi ovens we compared would save over eight thousand pounds in operating costs.”

Enlightened operators agreed that budget equipment was recognised as being a false economy due to the high breakdown and replacement rate. This could be especially dire with refrigeration where breakdowns can also lead to high spoilage rates, as well as restaurant losses when a lack of food forces closures.

A study by the Carbon Trust identified that a one-off implementation cost of £1,100 per site to replace refrigerators with those meeting Energy Technology List standards would be rewarded by cost reductions of £700 per site, per year. It would also reduce CO₂e by 3.4 tonnes per annum¹³.

1.2 Focus on payback periods

Manufacturers and other vendors need to set price points so premiums for more energy efficient equipment are paid back within two thirds of the product lifecycle. This is because the research found that this level of additional premium was acceptable in the right conditions.

Payback periods were dependent on:

- the lifespan of equipment
- warranty length
- payback periods for premiums

The interplay of these factors meant it was impossible to identify a standard percentage or payback period as being acceptable. However, a loose formula emerged which found that additional premiums were acceptable when:

- Payback is achieved before life cycle is two thirds completed and within the warranty period
- Life costings information is readily available, so payback can be demonstrated clearly

As one senior procurement executive for a major national chain noted, “generally, the life of a piece of equipment is at least five years. Therefore, as a general rule, pay back in two to three years would be reasonable.”

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1.3 Focus on functionality

“As a buying team, our responsibility is to provide good quality tools so the kitchen team can focus on providing great service to the customer.”

Henry Burgess, Head of Category,
Non-food Products, Compass/Foodbuy

Functionality was also a key consideration, with one third of interviewees identifying this as a primary purchasing factor. Finding ways to demonstrate how a more sustainable option also meets the necessary functionality requirements for each operation could therefore provide a valuable sales hook for more sustainable products.

Manufacturers and vendors should also look to incorporate key functionality criteria where possible within sustainable product ranges, though it is acknowledged that some sustainability features can create conflict with key functionality considerations.

“I would say 80% of purchasing is based on functionality, 20% is based on price,” explains Nick Howe, Managing Director of designer and supplier Court Catering Equipment Ltd. “Very few operators ask questions about energy efficiency unfortunately. There have been a number of projects over the years when a client has set out to have the most energy efficient equipment available – only to change their mind when project total is arrived at. It is the first thing that is value engineered out.”

“Functionality always comes first,” agreed one operator. “In an ideal world, you would consider all three equally, but realistically, decisions are based on functionality, price and then energy efficiency.”

1.4 Focus on reliability

“Reliability is the most important consideration, then it is functionality - it has to be able to do the job.”

Mark Ellis, Equipment Consultant,
McDonald’s Restaurants UK & ROI

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Supply chain impacts are also really important to operators because they to know that if equipment breaks down, it can be fixed or replaced quickly. Providing assurance in this regard could therefore be crucial to achieving sales.

"If the fridge is broken, the food gets spoilt and the site has to close," noted one operator. "We need suppliers that have scale but that can be quite nimble. This is a major consideration for us. What is their capacity? How much stock do they hold and how quickly can they react?"

"It's about both value and reliability," agrees Dennis Brewin, Head of Catering at the London Borough of Havering. "We don't purchase the cheapest as we've found that in most cases, and cold storage is a prime example, the cheapest tends to need replacing more often. This ultimately costs much more. It has to be value for money... We want equipment that is going to be robust and do the job for the longer term instead of breaking down... We do the best we can with the finance we have to make sure the children we feed in Havering get a good meal."

1.5 Link equipment to operators' sustainability strategies

The research confirmed that energy efficiency/sustainability criteria were more successfully prioritised in those organisations with strong corporate sustainability strategies or commitments.

Manufacturers and vendors can capitalise on this by demonstrating how energy efficient products can help companies achieve carbon reduction targets. Making these links overt is helpful as it provides a valuable way to frame a product's or the manufacturer's sustainability credentials.

This is important when, as one operator observed, "sustainability is now expected as routine. It is almost not an added value anymore, it's less of a talking point as it is on the agenda anyway." Directly linking sustainability credentials to an organisation's strategy is a way to demonstrate that added value.

The link to overall business strategy is likely to become even more powerful as the ramifications from the Paris Climate Accord continue to ripple through business, increasing pressure on operators to set stringent carbon-reduction targets. The Accord is a commitment to limit global temperature changes to below two degrees Celsius above pre-industrial levels.

1.6 Bring stakeholders together

For equipment manufacturers and other vendors, winning over every stakeholder is time consuming, but crucial. And, as many acknowledge, bringing stakeholders together is part of a salesperson's job.

"Bringing the silos together is essential," notes Simon Frost, Director of Sales and Chain Accounts, Hoshizaki UK. "The key point of being a sales person is about getting the message across and speaking to the right people to build a case. As energy bills continue to rise, it has made people sit up and take notice. Even those operating in the budget sector are investing in more expensive equipment because they can see the benefit long term because they have an estate with hundreds of sites. Plus, generally speaking, when you're paying a premium for equipment that is more energy efficient, it is usually built to higher specification and quality than something cheaper that will need replacing sooner."

INSIDER INSIGHT:

Larger operators more likely to invest than independents

With the ability to see scaled savings across the business, manufacturers and vendors noted that larger operators tended to be more open to investing in energy efficiency than independents who have typically tighter cost pressures.

"Chains are becoming acutely aware of energy efficiency," says Simon Frost, Director of Sales and Chain Accounts, at commercial ice and refrigeration specialists Hoshizaki UK. "They understand the benefits given that they have several hundred establishments, each of whom has a product. If they can show a saving across a grander scale, a higher premium can be offset. When a piece of equipment is singly owned, energy efficiency is a feature a buyer wants, but it all comes down to cost."

Kenn Tagg, Commercial Director, from commercial catering design specialists Space Catering agrees. "80% of clients are more environmentally astute so they do want to include energy efficient equipment where possible. But it comes down to capital on the smaller one-off replacements."

However, independents with strong sustainability mandates were recognised as having a major advantage as they have more flexibility, control and agility than larger, more unwieldy, autocratic organisations. So, when there is a will and budget to invest in more sustainable equipment, this can be acted upon.

"The bigger buyers might make purchasing decisions every day of the week, but if you run just one restaurant, the opportunity only presents itself when the equipment needs replacing. Equipment life cycles mean it takes time to climb into people's consciousness."

Steve Loughton, Director, UK & Ireland,
Hoshizaki UK

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It takes time to inform all the stakeholders and demonstrate this case to them, but this investment in client relationships is well worth making. Price becomes less of an issue when the manufacturers become more consultative about their sales.

“When you are trusted,” continues Frost, “price is not the primary factor. What matters is doing what you say you will do, when you say you will do it. Build relationships so that when you’re talking to someone about a more sustainable product, they will listen.”

Kenn Tagg agrees. “We try and play an important role in educating clients about what is available, meets their needs and how to use it. We’ve retained some of our clients for over 20 years as they buy into the fact that we will advise them on the best product for their particular needs.”

Operators are also increasingly receptive to being sold sustainability benefits. “I want to see equipment manufacturers make a bigger deal about their sustainable products,” says Pete Redman, Chef Director, Bartlett Mitchell. “I’d like to see more publicity and greater showcasing.”

“We place reliability, durability and energy efficiency at the centre of our design process,” continues Frost. “This sustainability focus really resonates with clients, and helps us to create hooks to win over different stakeholders.”

1.7 Target the budget holder

“I think most specifiers care. We do – and we often promote equipment which we believe is more energy efficient. However, clients will often decide it doesn’t meet their budget. Therefore, you put in what is going to meet their budget and not necessarily their environmental aspirations.”

Nick Howe, Managing Director,
Court Catering Equipment Ltd.

Specifiers and consultants tend to design kitchens with the most efficient and cost-efficient products they have; often including items such as refrigeration with decent warranties and items that take into account the economics of running costs and cost of ownership.

Yet typically, when specifications are put forward to clients, clients ask for them to be value engineered for savings of between 10-20%. This means alternatives might be put forward to save money on capital outlay. This usually leads to specifying items that will be cheaper but that will cost more to run.

Targeting the person holding the budget to get buy in for a whole-life costing approach can help to prevent this happening.

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1.8 Agree common energy consumption and costing data

"It would be hugely helpful to have comparable data. Most manufacturers say products are energy efficient but against what? You have to demonstrate it, but energy consumption and lifecycle cost information is not readily available."

Nick Howe, Managing Director,
Court Catering Equipment Ltd.

The research found that the lack of standardised energy efficiency and/or consumption data is a major barrier to the uptake of energy efficient equipment. This is because without it, it is hard to make the business case for investment in increased capital spend for lower running/lifecycle costs.

Initiatives like the EU Ecodesign Directive have helped to drive greater uptake of energy efficient products by making sure that, for some product ranges, only the most energy efficient technology can enter the market place. Currently, only commercial refrigeration and cooling products have to undertake rigorous testing and clearly label their energy efficiency ratings against new Minimum Energy Performance Standards (MEPS) which become increasingly stringent every year.

"Having products on the British Energy Technology List," notes Simon Frost, Director of Sales and Chain Accounts, Hoshizaki UK, "and getting 'A' class ratings on the EU Ecodesign Directive helps operators to make a clear and informed choice when it comes to purchasing the best, sustainable refrigeration for their business."

However, awareness of such schemes is still patchy and coverage is limited. During the interviews for this research, only a minority of operators had heard of the EU Ecodesign Directive. Typically, only those who had replaced refrigeration recently were aware that commercial refrigeration now had to display energy labels.

Yet for those who knew about them, and when those who did not were told about them during research interviews, the response to energy labelling for refrigeration was hugely positive. Across the spectrum, manufacturers, resellers, operators and industry bodies expressed relief that the alphabetised grading scheme would now allow standardised comparisons of energy efficiency and standard usage between different cooling products and brands.

Equipped for the Future

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“Understanding the operating cost differences, due to energy efficiency and energy labelling, has really helped customers to see the benefits of our more energy efficient ranges.”

Nigel Bell, Executive Chairman, Adande Refrigeration

“To be able to go back to clients with more factual evidence and information is hugely powerful. The MEPs for refrigeration means customers can see the costs on paper and it can justify the product very quickly.”

Kenn Tagg, Commercial Director, The Space Group

The benefits of investing in energy efficient equipment are usually clear, so gathering data is vital to making the business case. The research found that there was widespread support for expansion of the scheme to cover other high energy kitchen equipment, such as ovens and dishwashers. Standardised schemes with clear testing parameters are favoured to level the playing field, prevent false claims and make it easier to compare products and not be dependent on manufacturers' descriptions.

“You have to reply on manufacturers' specification sheets on what they claim is the efficiency of a product,” explains on senior purchaser for a major global operator. This requires expertise to “appraise whether the manufacturer can justify what they're offering.” For smaller operators, such expertise may not be readily available.

With the EU focus moving towards decarbonising the energy supply, rather than tackling the energy efficiency of a multitude of different energy consuming items, an expansion of the EU Ecodesign Directive to products outside of cooling looks unlikely at this time.

“There was talk about this type of system being implemented in cooking/dishwashing equipment,” observes Kenn Tagg, Commercial Director, The Space Group. “But it hasn't been. Finding the information ourselves to give it to clients is a lot of work, like pulling teeth. It can mean sifting through several hundred pages of documentation, often in another language, to find the usage data and it can still be hard to work out comparable energy and cost data. If there was any way to create standards, that would be immensely helpful.”

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Specifiers also note that pulling together lifecycle costs can be “finger in the air type stuff” because so much depends on how an item is used. The lifecycle of equipment in a primary school is very different to the lifecycle of the same equipment in a busy restaurant. In a school, it is being used for a few hours a day, five days a week. In a restaurant, it is used 16 hours every day. The requirements from different market sectors are very different, making the comparison of figures more challenging.

“In the tender process,” says Julie Peach, Category Manager, Sodexo, “we create spreadsheets which compare all the different options and prices. If there was something that could easily and simply enable us to incorporate sustainability elements like water and energy use, that would be very helpful so we could compare like with like. At the moment, sustainability is a consideration, but it is not overtly used as a comparison measure.”

Manufacturers must therefore come to a voluntary agreement to set their own standard configuration and testing parameters. This would enable the adoption of a common, simple, readily understandable label, in the same vein as MEPS, for products that are not currently covered by the EU Ecodesign Directive.

Better energy data may also end up being driven by less obvious external factors. One could be the wider adoption of Building Information Modelling (BIM). This is helping to digitalise construction. It means that computer models of buildings are being built which track every item from every brick, TV, cooker and light to enable stakeholders, such as architects and designers, to have the same data set. This helps the project to be monitored, measured and optimally managed during operation and could help value engineering if required.

1.9 Focus on innovation not incremental gain

“I want them to ring me and tell me if they have a great bit of kit that helps the planet and does what I need and is not too expensive.”

Pete Redman, Chef Director,
Bartlett Mitchell

The research revealed that overall, operators had a perception that catering equipment manufacturers were not innovating enough. Instead they felt manufacturers were focusing on incremental improvements in sustainability impacts, rather than developments which could ultimately be more transformative. This perhaps highlights a failure in the marketing and promotion of more pioneering kitchen products.

“We see a lot of forward thinking in other areas,” says one operator. “We are constantly being propositioned with sustainable solutions such as LED lights, low-flow toilets, rain water collection

..... Manufacturer/vendor action plan

systems - but the kitchen is largely ignored. The focus rarely seems to be on trying to reduce energy spend or water use in the kitchen." So, manufacturers need to do more to highlight and create a step change in products for the kitchen environment.

Innovation will transform the way kitchens operate

There is consensus that technology will change everything. Updates which provide new ways to cook, heat, and cool will radically transform the energy, space, time and resources required to fulfil these functions.

The internet of things is likely to change kitchen practices dramatically. This is especially in relation to connectivity which will allow equipment to be monitored remotely for energy/water use, and that can alert operators to faults before the equipment actually breaks down. Commercial fridges may soon be reading barcodes on products to track when items will reach their sell by dates. Versions by Google and Amazon are already in the domestic sphere, but manufacturers predict fully automated ordering will be a huge development in the commercial world in the coming years.

Other solutions include software that tracks the real-time operational hours that appliances are being used to ensure training can be implemented to optimise working practices.

One example given of game-changing innovation includes storage units that could hold proteins such as vacuum-packed burgers at a low pasteurising temperature for up to six weeks. This means they only need a couple of minutes on the grill at the end to brown before being served. The pasteurisation process improves the texture and flavour, whilst the whole system massively reduces energy usage, as storage and cooking energy costs and cooking (and therefore staff time) are massively reduced. Wastage is reduced too as only what is required is browned to order to create more consistent burgers so less burgers end up as spoilage. This means the system has a major impact on operating costs, from food purchase costs to disposal.

"These innovations are affecting the whole mythology of the kitchen," observes Kenn Tagg. "They require a different mindset and it will be a challenge to get them adopted... but such innovations can have multiple benefits: they save food waste, reduce the kitchen footprint, and improve return on investment."

"I'm glad that it has started to happen," enthuses Pete Redman. "Total facilities management systems that send an email when something is about to break would be hugely valuable as you could get an engineer before your fridge compressor breaks. At the minute, we know something is wrong when it starts beeping at us and by that point, it's too late. Other technological advances are also helping. For example, by using vacuum packs instead of storage containers, the air can circulate better as the vacuum packs take up a fraction of the space. The whole system is much more efficient. The advances in technology are really exciting."

2 Operator action plan

KEY ACTIONS

- 2.1 Smash through silos
- 2.2 Measure then manage
- 2.3 Focus on working environment
- 2.4 Demand energy efficiency and other whole life costings in tender documents
- 2.5 Draw links between equipment and utility costs
- 2.6 Ensure staff are well trained and invested in equipment

2.1 Smash through silos

“Keep each function in regular communication and involve each stakeholder so that purchasing briefs can be developed with the input of all parties.”

Senior Purchasing Executive,
Major National Chain

The research identified price and functionality as two of the most important considerations in the purchase of new kitchen equipment, though decisions are made on an interplay of factors. This heavy focus on initial outlay is often associated with the purchase price, rather than the whole-life cost.

Buyers are often motivated by items with the lowest price because their budgets and incentive structures reward buying equipment at the lowest cost. This disincentivises investment in energy efficient or more reliable equipment with lower running costs because running costs come out of the budget of other teams. “The big issue,” explains one operator, “is getting departments to put the company, not their own silo, first.”

This tendency to work in silos can mean departments responsible for different budgets do not communicate to ensure all costs and factors are considered before purchase criteria and decisions are made. Barriers must be broken down so buyers are working together with energy management, asset management and any other relevant teams to ensure whole-life costings and savings can be incorporated into purchase decisions.

“Quite often, different functions buy equipment in, depending on where those costs sit in the business,” explains one senior purchasing manager. “This can lead to a silo mentality where people don’t care if something doesn’t come off their department’s cost line. We’re trying to break down

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these silos by including maintenance, repairs and energy costs into investments. We try and look at the lifecycle of that item and say, 'what is the cost per year of hardware, warranty, energy cost?' All of that together will help make informed decisions."

"Active engagement with colleagues within procurement teams and sustainability teams at an early point is key," agrees Julie Barker, Director of Accommodation and Hospitality Services, University of Brighton. "Early engagement would ensure that the energy efficiency and sustainability credentials are fully understood including the cost benefits to the business. This would be key to ensure purchases are not just based purely on equipment cost."

Organisations which have broken down the silos to bring teams together when making equipment investments have found it dramatically improves the decisions made. It allows the equipment which is most effective for the business overall to be chosen, rather than the item with the best purchase price.

For operators, factoring in whole-life costing alongside functionality considerations is par for the course. According to one senior purchasing professional, the key is to keep each function in regular communication, and to involve each stakeholder so that purchasing briefs can be developed with the input of all parties.

The ideal is to take a systems view. "Buyers are bright people," observes Dominic Burbridge, Associate Director, Business Services, The Carbon Trust. "But the current system does not give them mandates to explore this and implement the change. The danger with all this is it becomes a finger pointing exercise over whose fault it is. Is it finance, procurement, property, sustainability? But it is no-one's fault. Let's take a systems view and solve it together."

Setting clear, science-based energy reduction and carbon targets as part of overall company strategy is part of this. "Business is feeling increasing pressure to set science-based targets which are aligned with the two-degree temperature rise target," notes Burbridge. "And clear targets can make a real difference to company behaviour. Once the Board has been brought in, they tell departments to find ways to make it happen. And as soon as departments have that mandate from the Board, everything changes."

2.2 Measure, then manage

"80% of the lifetime capital expense of equipment is in-use costs. Purchase cost accounts for about 15%, maintenance: five percent¹⁴. The institutional barrier? That buyers tend to be incentivised through objectives and targets to maximise value for money on purchase, not lifecycle cost."

Dominic Burbridge, Associate Director,
Business Services, The Carbon Trust.

Operator action plan

The classic structured approach of measurement, management and reduction can be hugely effective at identifying whole life costings and building the business case for investment in more energy efficient equipment.

For operators, accurate asset lists that track service, maintenance and, where relevant, energy, water and chemical consumption, are a powerful tool. They demonstrate the true life costs of equipment and build powerful business cases for investing in higher quality equipment with better features.

"I am ultimately responsible for our budget," notes Dennis Brewin, Head of Catering, London Borough of Havering, "including the pre-planned preventative maintenance and remedial budget. We keep a very detailed and up-to-date asset list for the estate. We know how often equipment has been serviced, maintained, its age and any reactive requirements. We noticed a pattern emerging with one particular brand that was not as robust as first thought - it did in fact turn out to be the cheapest which inevitably made it unviable to purchase in future. Analysing this data means I can justify the added cost to obtain much more reliable, cost-effective and often sustainable equipment."

Introducing a trial site with sub metering can also be valuable as it allows tracking of exactly where energy is being consumed and what equipment is being used when. Sub metering and monitoring provides vital data around behaviour which can inform training. It can also be used to inform menu design. Once interventions have been tested, the sub metering then provides the hard data business case to support a roll out across the business.

"In an average pub, energy costs are about two per cent of its annual turnover," calculates Dominic Burbridge. "Based on our client work, we find that there are usually between 10-30% savings available in the kitchen with a structured approach. With a FTSE 250 operator, that saving translates to a one to five per cent increase in profit. In a £2billion turnover business, that could mean energy savings worth millions across the business."

Utilise tools

One tool that can help to recognise the true financial and carbon cost of catering equipment is the Carbon Trust Calculator. Launched in 2013, the Cut Cost & Carbon Calculator can help to assess the impact of choosing more energy efficient equipment. It has been designed specifically for anyone involved in catering equipment manufacture and supply, or the design, specification and operation of a catering site.

It is designed to enable users to fully understand how to enhance profitability and reduce environmental impact through a range of activities including behavioural change, kitchen design, menu complexity and equipment selection. It requires significant detail, and therefore requires an investment in time, but it does enable operators to see exactly where efforts should be targeted. For example, the Calculator helped Mitchells & Butlers identify that replacing chargrills would lead to 20% savings, whilst a behaviour change programme reduced the energy usage of sandwich grills by over 70%¹⁵.

Another useful tool is Caterops from independent catering specialist, KEG Consultancy. The cloud-based tool which projects energy use, energy cost and the carbon footprint of commercial kitchens.

Operator action plan

It can be used to illustrate how capital investment influences energy efficiency and provides catering operators with a tool that will project energy efficiencies over the life of individual or multiple kitchens.

2.3 Focus on working environment

“People can be slightly glib about staff turnover – but if you think about the training cost and the effort of trying to get people up to standard, it is exhausting for managers.”

Dominic Burbridge, Associate Director,
Business Services, The Carbon Trust

Equipment has a big impact on the kitchen environment. Identifying quantifiable improvements in the working environment, as a result of investment in more sustainable equipment, demonstrates the case for investment.

This is because, when equipment works, its reliability makes it invisible. But when it performs poorly or breaks down, the impact on the quality of service and the bottom line can be significant. Quantifying these costs can help justify paying premiums for better performing products.

Take heat. Gas equipment is roughly 44% efficient, compared to induction which is over 74% efficient, according to US Department of Energy tests¹⁶. Advances in efficiencies means that these figures are likely to be even higher now. For example, one of the UK's leading suppliers of high quality cooking equipment, Exclusive Ranges claims its induction hobs can achieve 95% efficiency, and offer energy savings of 50-85% compared to conventional cooking technology. This means that much of the heat from cooking with gas heats space, rather than food. Refrigeration equipment does also contribute to increasing kitchen temperature.

These sources of radiant heat can build up kitchen temperatures, often to uncomfortable levels, compromising health and safety standards. This creates unpleasant working conditions, which fuels high levels of staff turnover and absenteeism. Philpotts¹⁷, the upmarket sandwich chain, reports that switching to induction has led to a 10% reduction in staff turnover. This is a result of the “cooler, cleaner environment”, according to David Mann, Managing Director, Philpotts. And, with some estimates putting the average cost of replacing an employee at £15,000, and two thirds of accidents in the catering industry attributed to inadequately maintained equipment, poor working environments can lead to high bottom line costs¹⁸.

To more easily quantify some of these costs, the Sustainable Restaurant Association's (SRA) guide to Sustainable Kitchens¹⁹ includes a sickness absence calculator to help put a cost to absenteeism caused by factors such as unpleasant working environments.

Operator action plan

Saving energy, improving quality of life

Energy reduction can improve staff retention and customer service, whilst reducing costs and noise pollution.

“It can be very hard to quantify benefits,” says Kenn Tagg, “but staff retention can be one of the biggest benefits of energy reduction efforts. In one site, the gas range we took out cost £1,200, and the induction range that replaced it cost £4,500. So how do you demonstrate it is worth it? That kitchen could get up to 53 degrees which was just unacceptable. The more energy efficient equipment created a better environment, dramatically reducing absenteeism and turnover and leading to a much better quality of service, which also drove sales.

By selecting more electric-fuelled and sustainable energy efficient equipment, the total volume of air extraction can also be reduced significantly. This reduces radiant heat gains in most cases. This in turns reduces the impact of the full ventilation system on the building, reducing duct sizes, plant requirements and reducing supply air requirements including its heating.

“In most cases,” notes Paul Crumpler, Area Sales Manager for kitchen ventilation specialists Halton Foodservice Ltd., “this lowers the fan and power requirements, thus helping to reduce energy further whilst also having less environmental impact with noise break out, something that can often make gaining planning approval difficult.”

2.4 Demand energy efficiency and other whole life costings in tender documents

Regulations around tender documentation can restrict what can be specified. Legal teams should be recruited to help ensure appropriate wording on requirements for minimum energy ratings, lifecycle impacts and costs and their weighting are included in tender documentation. This would help these costs to be incorporated into purchasing decisions. This information could then be used to demonstrate that any additional investment is recoverable in a certain time frame.

“We usually get three quotes from three different suppliers,” says Gelf Alderson, Head Chef, River Cottage HQ. “Then we choose the one with the best fit on cost, functionality and environmental considerations. But we don’t have a clear goal of reducing energy consumption so including that in the tender process would be helpful.”

Resellers and suppliers also crave more comparable data. “Transparency would make it easier for us to help our clients to prioritise sustainability criteria,” says Kate Gould, Founder, KEG Catering Consultancy. “An expansion of energy labelling and whole life costing data would be immensely helpful.”

Operator action plan

Procurement processes must be flexible

Operators should also ensure their procurement processes are flexible and are not restricted to preferred suppliers. The research revealed that another barrier to the uptake of energy efficient equipment is that many operators have preferred partners and they “stick with them come what may,” as one operator put it.

But sticking to preferred partners can lead to restricted choices. This has led some operators to try and create a more flexible procurement process, where a wider range of manufacturers are able to come in and showcase market developments and innovations.

2.5 Draw links between equipment and utility costs

“We have always been able to show clients that we have had cost savings when we’ve changed to more energy efficient equipment. There is good evidence across the business.”

Edwina Hughes, CR Director, Sodexo UK&I

Contract caterers can have a specific set of challenges when it comes to purchasing energy efficient catering equipment. This is because in contract catering and education environments it can be common for a different entity – typically the client or building owner – to pay the utility bills. This leads to a disconnect between those buying and/or using the equipment and those paying the bill.

“A lack of awareness and knowledge of the money involved in whole life costs can lead to complacency,” notes Mike Hanson, Director of Sustainable Business, BaxterStorey. Relationships need to be forged between whoever pays the utility bills and whoever pays for equipment, to ensure that both can benefit from investments in more sustainable equipment choices.

For the contract caterer, helping clients to manage their running costs provides an opportunity as it is a way to add value. “We should take more responsibility in terms of highlighting to clients the value and benefits in planning their equipment spend and incorporating whole life costing,” says Hanson.

In contract catering, for the client, catering facilities and equipment are often an afterthought because they are not part of the core business and may not have even been assigned a budget. Contract caterers can therefore play an important role in sharing their expertise to help their clients to maximise the value and reduce the running costs of their catering equipment.

Operator action plan

“There are two types of people in that world - specifiers and consultants, and the people who write cheques. Specifiers and consultants are easy to persuade – recommending sustainable equipment to their clients shows they are up to date but when it comes to signing cheques – the buck stops with the client.”

Steve Loughton, Director, UK & Ireland,
Hoshizaki UK

2.6 Ensure staff are well-trained and feel responsible for equipment

“There are still chefs who walk into a kitchen and automatically turn everything on - even though they may not use it for hours. So, break habits and educate kitchen staff on best practice.”

Paul Crowley, Marketing Development
Manager, Winterhalter

Staff must be well trained and feel responsible for equipment to ensure it is used appropriately, treated respectfully and is well maintained for optimum efficiency. Manufacturers, suppliers and operators all noted that the more invested in equipment users are, the better they care for it.

An irony in catering can be that the most expensive pieces of kitchen equipment may be operated by the lowest paid members of staff. This may make them less motivated to prioritise maintenance, which often takes additional time and effort. Language barriers can also present challenges when ensuring workers adhere to best practice.

Kitchen practices also need monitoring and modifying to ensure staff are using and maintaining equipment for effective and efficient performance. Behavioural factors and poor maintenance have been identified as major contributors to excessive electricity usage in commercial kitchens, with potential savings of 70% and 45%, respectively²⁰ identified in one study. For example, the old practice of turning all the ovens on when entering a kitchen in the morning is redundant when modern ovens can go from cold to 180°C in three and a half minutes, but old habits can die hard. The study noted that “strict ‘turn-on, turn-down, turn-off’ schedule[s]” could help. It also noted that “poor levels of maintenance noticeably contribute to excessive energy use in refrigeration.”

Operator action plan

This means tasks like keeping fridge gaskets wiped clean so they do not go brittle and keeping refrigeration coils regularly cleaned to keep them dust free, to prevent additional load on the compressor, must be prioritised and made part of kitchen staff's regular routine.

Manufacturers should also be utilised to train staff to ensure sites understand how to use equipment efficiently.

Do kitchen staff care about sustainable equipment?

Is there an appetite from those working in the kitchen for more sustainable equipment? The research posed this question to industry insiders and the answer was mixed.

Owner operators were largely agreed to be well invested, tending to keep equipment well maintained as they are strongly connected to the investment equipment represents. This was felt to be in contrast to kitchen staff in large chains who only care about equipment when it breaks.

Operators, such as those in quick service restaurants who often rely on young staff, also noted that this demographic tended to have a "more heavy-handed attitude to equipment" which could lead to equipment lifecycles being considerably shortened. "When manufacturers say a piece of equipment will last five years, we know it will last one in our business," one insider admitted.

However, insiders did note that there are of course exceptions, with some staff taking pride in keeping equipment well-serviced. The growing awareness of climate change was also recognised as having an impact, but this was not felt to be a significant driver.

Operators also acknowledged there could be massive disparity between sites when it came to staff kitchen practices. "We benchmark our sites regularly to identify the upper quartile and the lowest," noted a senior purchasing manager from a national chain. "Then we can use a carrot and stick approach of providing support to help them get their carbon management on track, but they know they'll get a red flag report if they don't improve."

Operator action plan

Do customers care?

The rise of the conscious consumer, and the changing dynamic of direct communication between customer and business in the social media age, raises the question of whether diners care about the energy efficiency of catering equipment. The answer to this research question was mixed. The majority felt that energy usage was out of sight in the kitchen and was too intangible a topic to become a major campaign issue, though it could potentially be more of an issue in theatre kitchens or those on show.

A minority felt the energy efficiency of equipment could pose a substantial reputational risk, whilst being responsible about kitchen energy use could draw customers in as it ties in with the movement towards provenance and the responsible sourcing of food.

“The energy usage of kitchen equipment could become a big issue,” notes Julie Peach, Sodexo. “Sustainability is becoming increasingly more important across the board to our clients and their customers and to our business. Our clients really want to know about our credentials and our knowledge and ability to help them with sustainability challenges is something they really value about us. It is something that really cements and strengthens relationships.”

3 Government and industry action plan

KEY ACTION

Government should introduce more incentives: foodservice should drive the agenda

3.1 Government should introduce more incentives: foodservice should drive the agenda

Consultants and specifiers often appreciate the benefits of more sustainable equipment. But with the people who hold the purse strings harder to persuade, industry insiders agreed that more incentives, such as tax breaks and the clearer linking of efficient equipment with meeting overarching emission reduction targets, are needed to persuade people higher up the chain. Enhanced capital allowances, which enable business to claim 100% of the first year's capital allowance on a product if it is on the Energy Technology List at the time of purchase, can help by providing a cash flow boost. But the feedback is that these schemes are not well known, and if they are, the administration of claiming on them can be an additional barrier.

"Specifiers and consultants get it," says Simon Frost, Director of Sales and Chain Accounts, Hoshizaki UK. "But the decision rests with clients. Manufacturers are doing our bit, but we need an incentive scheme similar to the ECA that supports and promotes the whole ethic around using products that are more sustainable and economical to run."

Foodservice plays an important role in lobbying government for such incentives, and in driving the agenda. A new industry backed energy board has been formed to lobby government to support tax breaks and reward related carbon reduction targets within the sector. Spearheaded by Businesswise Solutions, UKHospitality and hospitality industry figureheads, the Energy Advisory Board also plans to create a centralised bank of information for hospitality operators in order to share best practice and case studies.

Conclusion

The challenges to the uptake of energy efficient catering equipment may not be new. But what is different about tackling these issues today is the change in perception and momentum. The Paris Accord and the UN Sustainable Development Goals have put energy reduction targets firmly on the radar, globally, nationally and at a business level, and they continue to drive change in policy and business practices.

There has also been a seismic shift in foodservice to embrace and adopt sustainability which has started to define the industry. This can be seen in the increase in sustainability strategies and activities, the greater number of awards, working groups, collaborations and efforts. This groundswell means that change makers are now pushing at an unlocked door, giving the action points of **Equipped for the Future** a greater power to drive traction today than ever before.

The key impact area for manufacturers/vendors, operators and government have been identified. The perceived wisdom may have been right – price is a major barrier. And the fact that many business units operate in silos stymies a whole-life costing approach when procurement budgets are not linked to maintenance and energy management budgets.

But this research has drilled deep into the issue and shown that the solutions exist to overcome this – the industry must embrace whole-life costings. Manufacturers and vendors must provide reliable, comparable base data. Operators must acknowledge this data and incorporate it into tools such as the Carbon Reduction Tool and Caterops. This will ensure their businesses can understand and be persuaded of the business case of investing in more energy efficient equipment.

Manufacturers and vendors also need to examine how they can ensure their most sustainable products still fulfil their clients most important functional needs, and how these links can be demonstrated. Reliability is also key.

Operators must overhaul their buying process to ensure that all stakeholders, such as maintenance and energy management, play their part in the procurement process. Corporate strategies must be assessed to check they are aligned with wider societal goals, such as the Paris Accord. This will then provide the mandate to invest in more sustainable catering equipment. Consumption and whole-life costings data must be incorporated into the tender process.

Government also has a role to play by providing incentives for sustainable investment, and in levelling the playing field by applying the EU Ecodesign Directive more widely.

The steps have been identified and the benefits quantified. There is no longer an excuse for inaction. The industry must work together to embrace the framework's action points to ensure energy efficient catering equipment becomes today and tomorrow's norm.

About Footprint Intelligence

With the ever-shifting sustainability debate, accurate intelligence, enabling businesses to make informed decisions, is vital. Footprint Intelligence is Footprint Media Group's research and analysis division helping companies to develop successful strategies in the context of responsible business practices.

Footprint Intelligence aims to drive, promote and share best practice by helping industry to answer some of the most pressing sustainability questions of our time by taking on the challenge of asking tough questions and finding answers. We use research and industry insight to bring industry together to find workable solutions, revealing opportunities, trends and challenges.

Research description and acknowledgements

Footprint Intelligence was commissioned by Hoshizaki UK to conduct this research to identify the barriers and solutions to the greater uptake of energy efficient catering equipment in foodservice. The research is comprised of a mix of desk-based research, and semi-structured interviews, typically based on an online survey, as well as comment and insights gathered from other opinion leaders linked to industry. Over 30 experts were canvassed, with the sample including operators, equipment manufacturers, resellers and industry bodies.

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