



Hotel & Accommodation

SUSTAINABILITY GUIDE

At AIB, sustainability forms a key pillar of our strategy. As a financial institution at the heart of the Irish economy, we recognise that the scale and impact of our business gives us a responsibility to the wider economy and society. We have committed to do more to help ensure a greener tomorrow, by backing those building it today.

AIB has a target to achieve Net Zero in our own operations by 2030 and an ambition that green / transition lending will account for 70% of overall new lending by 2030 with a target to achieve Net Zero in our financed emissions by 2040 for our lending portfolio (2050 including agriculture).

To support our customer base on their own sustainability journey, AIB is releasing a series of sector specific sustainability guides. These guides aim to provide practical tips and information which can be used by businesses to transition their operations to a more sustainable footing.

This series has been produced in partnership with Mabbett, a leading environmental consulting and engineering firm. To view the full series of guides, please visit www.aib.ie/business.



HOTELS & ACCOMMODATION – SUSTAINABILITY GUIDE

The Hotel & Accommodation Sector is one of the largest indigenous industries and regional employers in Ireland. There are 831 hotels and over 5,000 Fáilte Ireland registered and approved accommodation stock in Ireland. Research shows that sustainability is playing an increasing role in driving consumer purchasing decisions when it comes to hospitality and accommodation. According to Booking.com, 81% of travellers state that sustainable travel is important to them, with 50% reporting that climate change has influenced them to make more sustainable travel choices¹.

Operating a sustainable business is increasingly key to both attracting customers and controlling cost. Improving resource efficiency makes complete business sense – it saves money, boosts business reputation, and helps to reduce our environmental impact, slowing down the impact of climate change. For the hospitality sector, strengthening resource efficiency has never been more important, as food and energy prices continue to rise. For many hotels, B&Bs and other accommodation businesses, already operating on tight profit margins, the financial savings that can be gained from adopting a more sustainable approach to business could make a significant difference to your bottom line.

Making significant changes to established daily working practices can be easier said than done. One of the aims of this guide is to support accommodation providers in Ireland to understand the benefits of maximising resource efficiency and supporting them in doing so.

KEY BENEFITS	
Financial savings – both long and short term	Improving the efficiency of resource use not only saves money on bills and purchasing costs, but it can reduce ‘hidden’ costs such as energy, labour and waste management, making a difference to your bottom line.
Reduced carbon footprint	Better resource efficiency could see you reduce your carbon footprint. This can support future proofing your business, in line with government legislation such as Ireland’s Climate Bill ² and path to Net Zero emissions.
Good for the environment, good for business	With 81% of travellers reporting that sustainable travel options are important to them in the wake of climate change ³ , improving your environmental performance could also improve your sales. Taking an active approach to sustainability can also make you a more attractive employer, which could lead to better team motivation, higher job satisfaction, and reduced staff turnover.
Enhances supply chain stability	Improved resource efficiency and sustainable sourcing can reduce demand on materials and shorten the supply chain, enhancing resilience in the face of wider supply chain instabilities.

This guide looks at some key resource intensive areas in the Hotel and Accommodation Sector, including -

- **ENERGY**
- **WATER**
- **WASTE**
- **SOCIAL SUSTAINABILITY**

For each topic, we identify common ‘hot spot’ issues and share some ideas for how you could enhance the sustainability performance of your business.

ENERGY

Energy is by far the biggest utility expense for Ireland's hospitality businesses⁴. The first step in working out how best to increase energy efficiency in your hotel or accommodation business is to identify:

- Key business areas that require energy (e.g. equipment, parts of the building, specific activities).
- How much energy is being consumed (this should include electricity, gas, and oil, where applicable. Information can be found on bills, meter readings, and expense receipts).

The industry benchmark for energy consumption in hotels is 360 kWh / m² per annum⁵.

You can use this figure to compare your performance against the industry average and drive further improvements.

HOT SPOT AREAS FOR ENERGY EFFICIENCY OPPORTUNITIES

HEATING

Heating can account for more than 40% of energy use in non-domestic buildings. This makes it a priority area when looking at where resource efficiency opportunities could be achieved. The two main heating requirements in hotels and accommodation businesses are space heating and hot water requirements. The following tips are a good place to start!

SPACE

- **Upgrading thermostat controls** – check if thermostats are working correctly and set to the correct temperature.
- **Thermostat location** – check that the temperature isn't being influenced by draughts, sunlight or internal heat sources like radiators.
- **Optimum temperature** – make sure rooms and areas are maintained at the correct temperature. Do you know the recommended temperatures for different areas of your building? See table below.
- **Air con. vs heating** – do you have air conditioning operating at the same time as your heating? Heating and cooling systems that 'fight' each other is a big drain on energy and bills.
- **Zoning** – depending on the size of your venue, consider separating areas and ensuring energy isn't being wasted in unoccupied areas, or adjusting temperatures to different areas accordingly.
- **Use timers** – discourage staff from using thermostats as an 'on/off' switch and use timers for more efficient and regulated heating.
- **Regular boiler maintenance** – it's important that your boiler is running efficiently so that energy (and money) isn't being wasted.
- **Refurbishment** – according to The Carbon Trust, most hospitality businesses have a refurb every 7-10 years. Some venues have seen energy savings of up to 40% when energy efficiency opportunities are maximised during upgrades.



WATER

- **Temperature check** – is your hot water too hot? The optimum temperature for stored hot water is 60°C to kill Legionella bacteria and is sufficiently warm for staff and guests. Excessively hot water is wasteful and could harm staff and guests.
- **Pipework insulation** – ensure pipework is insulated as well as valves and flanges. A thermal imaging survey can point to heat loss in pipework.
- **Water conservation** – is more hot water being used than necessary? Consider installing water saving taps that minimise water use by automatically closing the tap and/or uses a flow limiting device. This will not only reduce water use but reduce the volume of water that requires heating for customer use. For handwashing taps, a flow rate of 4 – 6 litres per min is recommended to reduce water consumption while maintaining a sufficient flow for hygiene.
- **Heat pumps** – buildings with consistently high heat demands throughout the year may benefit by installing heat pumps, through which hot water is produced for both heating and water use.
- **Staff training and best practice** – ensure all staff are aware of the importance of reducing inefficient usage of hot water, across kitchen, front of house, cleaning and maintenance departments.

OPTIMUM TEMPERATURES FOR DIFFERENT AREAS WITHIN YOUR HOTEL OR ACCOMMODATION.

ROOM TYPE	TEMPERATURE (°C)
Guest bedrooms	19 – 21
Guest bathrooms	26 – 27
Corridors	19 – 21
Kitchens	16 – 18
Restaurants & dining rooms	22 – 24
Bars, lounges	20 – 22

LIGHTING

Correct levels of lighting are an important health and safety requirement, but hotels and accommodation providers should also consider ways to improve lighting efficiency. The table below highlights some things to think about.

- **Effective lighting** – is it doing the right job? Using a lux meter will measure the lux levels to understand if the area is under or over lit. Different lux levels are recommended depending on the type and function of the room. For example, luminescence of 200 lux is recommended for continuously occupied areas such as foyers, dining rooms and entrance halls, and 100 lux is recommended for casual areas such as in corridors and changing rooms. More information on lux levels can be found in the SEAI lighting guide in the Resources and Further Information section.
- **Switch off policy** – encourage staff to switch off lighting in areas of low occupancy (e.g. offices, stock rooms, function rooms).
- **Upgrade to more efficient lighting** – replace tungsten light bulbs with compact fluorescent lamps (CFLs) or light emitting diode (LED) bulbs to achieve up to 80% cost savings. CFLs and LEDs have the added benefit of longer lifespan, providing additional savings in reduced replacement costs. Low wattage bulbs can also save energy.
- **Maintenance** – ensure lighting systems including the lamp and automatic sensors are cleaned regularly to remove dust and other debris which reduces their effectiveness.
- **Replace** – flickering, failed or blown lamps continue to consume energy so remove or replace them immediately.
- **Occupancy sensors** – automatic sensors can achieve savings of 30% to 50% on lighting costs (and energy consumption). They are particularly handy in cellars, customer toilets and zoned areas.



CORK AIRPORT HOTEL

CASE STUDY

The Cork Airport Hotel, part of the Trigon Group, is a 81 bedroom 4 star hotel located adjacent to Cork Airport. The hotel has set ambitious goals to lower its carbon footprint, reduce energy consumption and waste. One undertaking has been to install motion sensors in halls and light sensors on outside lighting. This relatively inexpensive investment of €3,000, has generated significant energy reductions of over 100,000kWh which in 2022 alone delivered savings of over €40,000.





KITCHEN ACTIVITIES

Effective energy management in catering can provide substantial savings, as well as improving working conditions in the kitchen. In some kitchens, 40% of the energy consumed is used for food preparation and storage. Most of the wasted energy is dispersed into the kitchen as heat⁶.

EQUIPMENT

- **Capacity** - running equipment that doesn't match the required capacity is a key source of wasted energy in hospitality kitchens. For example, heating ovens or stock pots that are larger than necessary results in inefficient energy use and extra running costs.
- **Efficiency** - modern deep fat fryers can heat oil much quicker, have better temperature recovery times, and use less oil than dated models.
- **Inefficiency** - under or over-used fridges and freezers can result in inefficiencies. For example, over-stocked appliances can become strained. Unit capacity should be matched to requirements as closely as possible for best resource efficiency.
- **Duplication** - is all equipment necessary? Many hotels have multiple storage areas and cold storage units. Consider condensing fridges/freezers in quieter months and turning off unused appliances to save energy.
- **Maintenance** - check when appliances were last serviced and assess whether older items are still up to scratch. Running old, inefficient appliances could be using additional energy resulting in higher operational costs compared to investing in newer, more efficient models.

SMART WORKING

- **Overfilling** - avoid over-filling kettles, pots of water and saucepans – and use lids where possible to retain heat. Doing so can reduce the time and energy required to bring what you're heating up to temperature.
- **Pre-heating** - make a note of kitchen appliance pre-heating times and only switch on when necessary, not automatically at the start of the shift.
- **Segregation** - is your equipment well placed and spaced? Locating fridges/freezers too tightly together, or near cooking stations, makes units hot, meaning they work harder⁷. This is bad for the equipment – and your electricity bills.
- **Switch off policy** - encourage staff to switch off equipment when not in use, such as extraction fans, grills, hot cupboards.

SPA, SWIMMING POOLS AND LEISURE FACILITIES

Leisure facilities can be a huge source of energy usage for hotels and accommodation service providers. Depending on the size of your venue and the facilities you offer, there are a range of areas where energy efficiencies could be made.

SWIMMING POOL

- **Pool Covers** - using a cover for the length of the entire pool can reduce evaporation. This could result in huge savings by reducing heating and ventilation requirements.
- **Air Temperature** - is the air temperature of your pool area accurately monitored and maintained? Ensuring air temperature is maintained at 1°C above the water temperature will limit evaporation from the pool surface, again saving on heating and ventilation.
- **Optimum Temperatures** - know your optimum water temperatures. Good practice water temperature for swimming pools is usually between 28–30°C, while spa and hydrotherapy facilities are generally maintained at a higher temperature but should not exceed 40°C.
- **Pump systems** - consider whether existing pumps are oversized and would benefit from installing variable speed drives for pool pumps to match the motor power with the pool system demands.
- **Filtration system** - traditional sand filtration systems can be replaced with lower energy alternatives. These alternatives also have the added benefit of reducing waste sand and water usage (see water section below).

SPA & LEISURE FACILITIES

- **Switch off policy** - ensure heating is turned off in steam rooms and saunas when unoccupied e.g. overnight.
- **Timers** - ensure leisure facilities are switched off when not in use. Consider a plug-in timer to ensure machines are not on standby overnight.
- **Equipment efficiency** - consider the energy efficiency of current sports equipment e.g. treadmills. Could more efficient equipment be purchased when existing machinery needs replacement?
- **Air Quality** - ensure air con and ventilation are being used as efficiently as possible and switched off when not required.
- **Sauna Design** - consider most efficient material use for your sauna design. Glass panels on saunas can reduce energy efficiency of the sauna by up to 10%.
- **Sauna Heating** - consider the size of the rock basket used to hold the Peridotite rocks used for heat retention. If the rock basket is overfilled or packed too tightly, this will impact the efficiency of the heater.



MATERIAL USE AND WASTE REDUCTION

As with energy, managing your hotel or accommodation's food purchases more efficiently should have a direct impact on the waste that's generated. Preventing waste has been estimated to save up to 10 times the actual disposal cost, due to the hidden costs of waste such as lost labour time, energy costs and lost materials.⁸

Typical materials and wastes associated with hotels include food, packaging, catering relating disposables, guest toiletries, cleaning products and back-of-house/office materials.

WASTE REDUCTION

FOOD WASTE

In 2022, hotels and accommodation accounted for 17% of Ireland's food service market⁹. Unsurprisingly, food represents a huge source of waste for the accommodation sector in Ireland. In 2020, 23% of total Irish food waste was from the hospitality sector, including hotels and B&Bs¹⁰. Of this waste, it was found that hotels have the highest level of food waste. As well as the high volume of waste, crucially 66% of the food waste generated by the hospitality sector was *avoidable* food waste – that is, edible¹¹.

In the hospitality sector food waste typically occurs as three main waste streams: preparation waste, customer plate waste and spoilage waste. By measuring and monitoring food waste, you can better target where intervention would be most effective.

PREPARATION

- **Maximise use** - using as much of the ingredient as possible. Many fruits and vegetables don't need to be peeled, especially if they are going into sauces, stocks and soups. Consider how much of what is thrown away could have been eaten instead.
- **Efficient preparation equipment** – kitchen gadgets can go a long way in reducing food waste. Vacuum pack machines can extend the shelf life of some produce significantly longer than regular storage.
- **Pre-portioning** – preparing menu item portion sizes, such as pie fillings, vegetables portions or cuts of meat can reduce waste as portioning can be better controlled and more consistent than during busy service times.

PLATE WASTE

- **Portion sizes** – regularly review food that comes back on customer plates and make a note if there are any trends in specific dishes or menu items that are often wasted. This could be an opportunity to reduce portion sizes and save food (and money) ending up in the bin.
- **Garnishes** – do your dishes include a garnish or small side salad that are often left by customers? If so, consider the value they bring and whether they could be removed.
- **Feedback** - trialing changes and seeking customer feedback can be an effective way of making waste saving changes.

SPOILAGE

- **Stock rotation** – practice using the 'first in, first out' system and identify any items that are in need of quick use.
- **Temperature control** – ensure all fridges and freezers are set to the correct temperature, not cooling food too quickly and reheating food to the correct temperature. This is important for both maximising food quality and food safety.
- **Effective stock management** – reduce the chance of ingredients spoiling through over-ordering, poor labelling and untracked items.

8 <https://www.investni.com/sites/default/files/documents/static/library/invest-ni/documents/waste-minimisation-efficient-management-for-cost-savings.pdf>

9 https://www.bordbia.ie/globalassets/bordbia.ie/industry/insights/2022_irish-foodservice-marketconsumer-insights_report_final.pdf

10 <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/food/#d.en.101376>

11 <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/food/#d.en.101376>



CONSUMABLES AND DISPOSABLES

PACKAGING

- **Reduce single use packaging** - ask suppliers if they can deliver materials in reusable or returnable packaging, such as plastic crates instead of cardboard boxes. Not only should this improve your resource efficiency, but also reduce waste disposal costs.
- **Request recycled packaging** - packaging made from recycled content means that it was not made from fully virgin materials, giving it a lower carbon footprint than the virgin equivalent.
- **Reduce packaging** - where possible, ask if suppliers will deliver without packaging. Some independent local suppliers often foster strong relationships with clients and greater flexibility around delivery options.

CATERING RELATED DISPOSABLES (PAPER MENUS, NAPKINS, PAPER TOWELS)

- **Reduce use of disposable items** - take a note of the disposable items used throughout your hotel and assess how many could be switched to reusable alternatives. For example, could you use cloth napkins or hand towels instead of paper ones? Could you make use of reusable storage tubs with lids instead of clingfilm?
- Consider whether disposable items have a necessary function or if they could be removed altogether.

CONSUMABLES (CLEANING PRODUCTS, OFFICE STATIONERY, TOILETRIES, ETC)

- **Concentrated products** - purchase concentrated cleaning fluids that can be decanted and diluted into smaller spray bottles. Not only will this reduce packaging, but it should reduce waste disposal costs.
- **Bulk purchase** - reduce the quantity of smaller containers by purchasing in bulk. This is particularly good for items that can be decanted into smaller containers for customer use. For example, refill larger toiletries bottles in guest bedrooms instead of providing small disposable ones for each guest to take away.

The Killarney Park

CASE STUDY

The Killarney Park Hotel is a 67 bedroomed 5 star, family run hotel located in the heart of Killarney, Co. Kerry.

In a concerted effort to reduce waste levels, the hotel removed single use toiletries from bedrooms. Initial investment of €10,000 provided a payback period of less than a year with an annual cost-saving of €12,000 per annum. The environmental impact has been the removal of 250,000 small toiletry bottles from waste each year.

WATER

Water is used in the hospitality sector for many activities, from professional kitchens to cleaning, laundering, customer toilets and leisure facilities such as swimming pools. One of the most effective ways of reducing water use is knowing all the areas in your business that need water. Doing so will help you identify how much is being used and where savings can be made. This information can usually be found on water bills if your venue has a water meter.

TYPICAL AREAS OF WATER USE IN YOUR HOTEL OR ACCOMMODATION:

BACK OF HOUSE	FRONT OF HOUSE
<ul style="list-style-type: none"> • Cooking and food preparation • Handwashing • Cleaning • Laundry • Sprinkler system 	<ul style="list-style-type: none"> • Drinking • Refrigeration • Ice machines • Grounds maintenance • Bar and/or restaurant ingredients • Toilet flushing • Customer handwashing • Showers/baths • Leisure/pool facilities

WE LOOK AT HOW YOU COULD IMPROVE WATER EFFICIENCY ACROSS DIFFERENT AREAS OF YOUR HOTEL OR ACCOMMODATION BELOW.

HOT SPOTS FOR WATER CONSERVATION

For most hotels, the kitchen will be the area where a high volume of water is consumed. As well as direct water use, almost 20% of restaurant energy consumption goes to heating water. Managing water use more efficiently could improve your venue's environmental sustainability performance, which should also lead to financial savings.

KITCHEN CONSIDER THE FOLLOWING FOR WATER SAVING OPPORTUNITIES:

- **Dishwasher unit efficiency** - is your dishwasher using more water than it needs to? Compare how many litres it consumes per cycle with other similar capacity units on the market. Saving even 0.5 litres of water per wash load would lead to substantial water and energy savings.
- **Optimise usage** - ensure your dishwasher and glasswasher are filled to maximum capacity before running the cycle, as this will optimise cycle times. Instilling sustainable habits in staff should result in real long term time and money savings.
- **Defrosting** - defrost produce overnight in the fridge rather than under a running tap.
- **Overfilling** - use the correct size of pots and pans for cooking to avoid over-filling. Over-filling not only wastes water, but wastes the time and energy required to heat a bigger pan.
- **Pressure valves** - consider installing pressure reducing valves on taps. Regulating water flow is a simple way to reduce water use, and the energy needed to heat it.
- **Handwashing** - for handwashing taps, a flow rate of 4 – 6 litres per minute is recommended. This can reduce water consumption while maintaining a sufficient flow for hygiene.
- **Pre-rinsing spray guns** - maximise water efficiency in the pot wash section. A flow rate of 5 – 6 litres per minute is recommended best practice.
- **Boiling water tap** - consider whether installing a boiling water tap would increase water and heating efficiency.

OTHER AREAS OF WATER USE IN HOTELS AND ACCOMMODATION INCLUDE:

CUSTOMER BATHROOMS

- **Install water saving taps & shower head** - minimise water use by automatically closing the tap and/or by reducing flow rate using a flow limiting device.
- **Install low flush toilets** - older style toilets can use up to 13 litres of water per flush. More efficient toilets only use up to 4.5 litres per flush, leading to potential water savings of over 50% per flush.
- **Consider retrofitting toilets with low flush devices** – if budgets are a challenge, there are a number of water saving devices available which minimise water use in existing toilets by restricting the volume of water used per flush. These include retrofit dual flush conversion kits, cistern dams and cistern bags.
- **Install urinal flush controls** – use occupancy or water pressure to control water usage in urinals, e.g. non-concussive, occupancy detection, and hydraulic valve. These units avoid continual passing of water when the urinals are not being used.

LAUNDRY

- **Maximise efficiency** - operate washing machines on full loads.
- **Equipment** - when upgrading equipment, look for water use information on the European Water Label.
- **Guest buy-in** - consider introducing signage in guest bathrooms asking short-stay guests if they need their towels changed daily, to improve water and energy efficiency.

SWIMMING POOLS

- **Top up system** - check if the automatic water top up system is functioning correctly and not overfilling the pool.
- **Review the existing filtration system** - traditional sand filtration systems can be replaced with lower water use alternatives. These alternatives also have the added benefit of reducing waste sand too.

GENERAL GOOD PRACTICE

- **Leaks** - identify and report any leaky taps and pipes.
- **Turn off policy** - implement a 'turn off' policy, encouraging staff not to leave taps running.
- **Table water** - only serve water to guests who ask for it.
- **Staff engagement** - introduce staff training and awareness to highlight the importance and benefits of water efficiency to the business. This should be done semi-regularly as some long-term staff may require refresher sessions.

CASE STUDY

Part of the Griffin Group, the 102 bedroom, 4 star Ferrycarrig Hotel overlooks the stunning River Slaney Estuary in County Wexford.



Due to increasing water and energy costs, the hotel set about reducing their water consumption by installing low flow shower heads. Shower flow rates of 26 litres per minute were reduced to 6 litres per minutes whilst feedback showed no impact on customer satisfaction. The reduced flow rates produce annual savings of €5,000 per annum on water costs and approximately €5,000 on reduced heating costs. The initial investment of €8,500 provided a payback period of 10 months.

SOCIAL SUSTAINABILITY

Social sustainability assesses a company's engagement with, and impact on, its workers, customers, suppliers, and the local community. Organisations can positively contribute to fairness in society, investing in fair and equal opportunities and conditions for employees, people working in the supply chain, and local communities.

THE BENEFITS OF IMPROVING SOCIAL SUSTAINABILITY IN YOUR HOTEL / ACCOMMODATION

- Improving business reputation
- Attracting employees who value working for a socially and environmentally conscious employer
- Attracting customers who may be more willing to support socially and environmentally progressive businesses compared to those who are less so.

There are many ways in which social sustainability can be promoted in your hotel, depending on your interaction with different stakeholder groups. We've outlined some of the top things to consider when engaging with these three key stakeholder groups.

HOT SPOTS FOR SOCIAL SUSTAINABILITY

WORKFORCE

- Providing regular training and support to staff to improve their confidence and sense of value in the team. Staff who feel valued and included within the team are more likely to perform well and foster company loyalty. This can reduce costs associated with staff turnover and low productivity.
- Supporting health, safety, and wellbeing; making your hotel or accommodation a safe, welcoming and desirable place to work.
- Promoting equality in the workforce with diversity and inclusivity policies.
- Identifying and supporting career development.

SUPPLIERS

- Preventing abuses within the supply chain, such as labour rights, including modern slavery.
- Uphold standards of fair trade and social equality.

CUSTOMER AND COMMUNITY

- Ensuring products and services are safe for customer consumption.
- Preventing social injustices and promoting equality and inclusion within customer base.
- Contributing to the local community, such as investing in local projects or funding educational initiatives,
- Donating products or redistributing surplus food/drink, such as meals to those in need.



ADDITIONAL RESOURCES AND INDUSTRY BODIES

- **The Green Hospitality Programme** is an Irish Hospitality, Travel & Tourism resource for sustainable and responsible tourism. The Green Hospitality Awards is also an internationally recognised awards programme. greenhospitality.ie
- **Fifty Shades Greener** is a leading sustainability company providing education, certification and consultancy to businesses, tourism destinations, governments and educational providers. They provide a four-tiered Green Award programme and environmental training programmes for the hospitality sector. fiftyshadesgreener.ie
- **Fáilte Ireland** is the National Tourism Development Authority in Ireland and is committed to supporting long-term sustainable growth for the industry. www.failteireland.ie
- **SEAI** gives detail on energy audit supports and consultants provided by SEAI www.seai.ie/business-and-public-sector/small-and-medium-business/supports/energy-audits/
- **AIB / SBCI Energy Efficiency Loan Scheme** supports qualifying Irish businesses, including primary producers, by providing access to affordable medium to long-term finance, so that they can invest in the energy efficiency upgrade aib.ie/business/sbci/energy-efficiency-loan-scheme
- **Sustainable Energy Authority of Ireland** is Ireland's national sustainable energy authority, working with businesses to create a cleaner energy future. www.seai.ie
- **SEAI Lighting Guide** provides information on efficient lighting advice and best practice tips. www.seai.ie/publications/SEAI-Energy-Efficient-LED-Lighting-Guide.pdf
- **The Carbon Trust** provides advice and support to businesses looking to improve their environmental performance. www.carbontrust.com/

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