YOUR GUIDE TO GOING GREEN

An Energy Toolkit for Hospitality

In partnership with Ecotricity
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Carbon Emissions = Climate Change
Electricity and gas: all foodservice businesses use one, if not both, to store and cook food, ventilate and light their space. Energy use accounts for 4-6% of daily operating costs for the average food service business, while constituting a significant environmental impact too. A 20% reduction in energy use can represent the same benefit as a 5% increase in sales.

This toolkit aims to help you build an energy policy that drives down the carbon footprint of your business and give you the lowdown on green energy to support you in making the switch.

Energy is everywhere in your business, from the embedded energy required to produce food to the running of fridges, stoves and gas rings, lighting, ventilation, and even the fuel from the truck that comes to empty the bins. This energy leaves a carbon footprint, contributing to global emissions, bit by bit. On an annual basis, the British hospitality industry produces more carbon emissions than Costa Rica.

Burning fossil fuels such as coal and natural gas has provided much of humanity’s energy needs since the Industrial Revolution, but that’s changing in a big way. And it has to – the 2018 International Panel on Climate Change Special Report on Global Warming stated that we have just 12 years to reduce global greenhouse gas emissions to keep the temperature increase below 1.5°C by 2050. We’re currently on track for a 3-4°C increase. With irrefutable evidence that greenhouse gas emissions, including carbon dioxide (CO₂), are driving climate change on a global scale, there’s an immediate need to radically decarbonise energy generation and other business activities.

Decarbonising may sound like a fad diet, but what it really means is lowering the carbon emissions, or the carbon footprint, created by your business. This can be achieved in a multitude of ways, from fitting timers on non-essential lights, to changing your menu to preference more veg, to training staff when to turn on and off kitchen equipment, or switching from a brown energy tariff to a deep green one.

The issues we’re facing are far-reaching, complex and critically important, but a few simple actions can help your business make a seriously positive impact.
Understanding the energy market

The energy market is complex, so before using the practical advice in this toolkit it’s important to understand how the energy market works in theory - so you can make the right decisions at the end. Regardless of your tariff or energy supplier, the electricity that keeps your lights on comes from the nearest power plant to you. You effectively take what you need from the grid and pay companies to put power back in. Think of the National Grid as a lake. The energy generators act as tributaries that flow into the lake and a small stream comes out of it that feeds your business. You can’t choose exactly what water comes out of the lake, but can choose which generator and tariff you purchase to refill it.

**BROWN TARIFFS**

These are standard, the opposite of green. Electricity is generated by any means, but principally through fossil fuels, including burning gas and coal. Brown tariffs will include some green energy, simply because it exists in the grid (the grid is 29% green, but only 7-9% is sold as green).

**BROWN & GREEN TARIFFS**

Where energy is bought from a mix of sources, including fossil fuels, renewables and nuclear. Because there is already some green energy in the grid, they simply sell the latent green energy to customers that want it, effectively making the brown tariffs browner. It is clever advertising that does not make the grid greener overall.

**LIGHT GREEN TARIFFS**

These are sold by companies that buy REGO certificates (see definition below) to ‘green’ the energy bought from any generator. There is a complex secondary market for REGO certificates on top of the primary energy market, allowing brown energy to be ‘greened’ by buying REGOs. Some light green tariffs may come from 100% renewable sources, others may not, but it’s difficult to tell. Choosing a light green tariff isn’t a bad way to support the green energy industry but it may not always drive the expansion of green energy projects across Britain.

**DEEP GREEN TARIFFS**

Are sold by energy companies that generate some or all of their own electricity and gas, who only sell 100% renewable electricity. All electricity will be backed by REGOs, but the key difference is that money from your bills will be directly reinvested into expanding renewable energy projects in Britain. So you’re making a difference when you pay your bill - greening up the grid and helping to create a greener Britain.
OTHER TERMS

**RENEWABLE ENERGY**
Energy derived from a source that is not diminished in the process (e.g. solar and wind).
Or energy from a source that is replenished over a short time span (e.g. wood-chip biomass).

**NON-RENEWABLE ENERGY**
Energy derived from sources that are diminished and not replaced during the process (e.g. coal, oil, natural gas).

**LOW CARBON ENERGY**
Energy with low carbon emissions per kWh produced (e.g. solar and wind).
Low carbon energy is not necessarily renewable.

**BROWN ENERGY**
Energy with high carbon emissions per kWh produced (e.g. coal, natural gas).
FUEL MIX DISCLOSURE

Every year all energy companies in Britain have to publish exactly where the energy they supply comes from in their 'annual fuel mix disclosure'. These fuel sources range from brown sources (fossil fuels like natural gas and coal) to renewable sources like wind, sun, hydro or tidal.

It's important to note that all energy companies are obliged under the Renewables Obligation to source (not necessarily to sell) an element of green energy.

REGOs

Renewable Energy Guarantees of Origin – essentially a certificate to prove that the energy that a company has purchased is green. In buying REGOs, companies can (in some instances) ‘greenwash’ their energy without buying or self-generating the accompanying green energy. You may expect that these are ‘100% green’. However, the purpose of these is to ensure that a ‘given share’ or proportion of the energy they purchase comes from renewable sources. The total amount of green energy certificates or REGOs does not relate to the total amount of green energy available in the market. Moreover, these green energy certificates are bought and sold for just a few pence, making it very cheap and easy to exploit the loophole under the current fuel mix reporting rules to ‘greenwash’ tariffs.

SMART METERS

Digital equipment that tracks your electricity and gas usage in place of the traditional meters that contain a spinning disc. Smart meters record energy use in real time and send that data back to you – to help you understand your usage – and your energy provider, to ensure that your bills are precise, and you can target energy savings across your operations.

Lots of energy suppliers have a green tariff – but are they as green as they seem?

BROWN & GREEN

Supplier’s fuel mix

Brown & green providers use a mix of fossil fuels, nuclear and renewable sources, and often offer green tariffs. However, if you choose a green tariff from one of these suppliers, you won’t really be greening up Britain’s energy or making a positive difference at all – you’d just receive green energy that’s already in our grid.

LIGHT green

Supplier’s fuel mix

“GREEN” energy tariff

Light green providers offer only renewable energy tariffs, but most of these simply buy green energy certificates (called REGOS) on the wholesale market to label their energy green. That means they can provide energy originally from fossil fuels, and still call themselves green by relying on these certificates!

REGOs are traded for a few pence to ‘green-up’ the light green’s

DEEP green

Supplier’s fuel mix

GREEN energy tariff

With a deep green supplier there’s not just a green source to your energy there’s a green outcome too – you’re genuinely contributing to change in Britain. Your payment is invested in new renewables as well as EV charging points and grid battery-storage.

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Process

How to reduce your footprint

- Energy tracking, measurement, reduction
- Creating carbon reduction targets and timelines
- Understanding the varying carbon impact of renewables

You can't manage what you don't measure.

The first step is knowing how much energy (electricity and gas) your business is using, and the more data you have, the more accurate your baseline will be. If you have smart meters installed, this data will already be collected and stored, and it's no problem if you don't. You can read and record your analogue meter at the end of service every day or week, or use the readings from your monthly energy bills.

Smart meters need not be an expensive investment: your energy provider can help you have smart meters installed at your business, and will set you up with online energy monitoring software as part of your contract.

Tracking this data will help you understand the peaks and troughs of your energy usage, and comparing this to your sales data can help you calculate your energy cost per cover. This makes your energy bill more tangible, and can help demonstrate a reduction in energy usage even when your business is growing.

Setting a baseline shows you how impactful your energy saving initiatives are, letting you communicate your successes back to your team (and financial manager).

Once you understand your usage, setting reduction targets is the best way to drive change. There is no exact science to choosing a target. 10%, 15% or 20% are all fair places to start, but choosing a completion date and reviewing your progress as often as possible is essential.

Reducing your energy usage can have a huge impact on your bottom line as well as carbon emissions, and switching to a deep green tariff can help you go much further, faster.

Does it matter which green supplier you choose?

There are a couple of things to think about.

Firstly, it's useful to remember that some sources of renewable energy are cleaner than others. Renewable energy comes from a range of sources, including: solar power, onshore and offshore windfarms, anaerobic digesters and biomass burners. No energy source is zero-carbon, because emissions will be released during the construction of solar and wind farms and other plants, and greenhouse gasses are released when burning biomass. However, wind energy generates zero carbon energy – and it only takes six months to pay back the carbon used in its construction.

When calculating the carbon footprint of different energy sources, we talk about CO₂ equivalent (eq) because it takes into account other greenhouse gasses released too.
Energy Source | Type          | Classification | g CO₂ eq/kWh¹,²,³  
---|---|---|---  
Coal | Non-Renewable | Brown         | 820   
Natural Gas | Non-Renewable | Brown         | 490   
Low density biomass (e.g. Miscanthus) | Renewable | Green | 93   
Solar | Renewable     | Green         | 58    
High density biomass (e.g. wood chip) | Renewable | Green | 25   
Storage Hydro | Renewable     | Green         | 20    
Anaerobic Digestion | Renewable     | Green | 11   
Wind | Renewable     | Green         | 5     
Run-of-River Hydro | Renewable     | Green         | <5    

Whilst you don’t need to commit these figures to memory before speaking to your energy supplier, they provide a good overview of the positive impact that switching to a renewable energy tariff actually has.

To put it in perspective, electricity from burning coal has an extremely large life-cycle carbon footprint, much of which comes from the operational phase. This means that over the course of its lifetime, a coal power plant will release the equivalent of 820g of CO₂ eq for every kWh of electricity produced. This includes building and running the plant, but most of the emissions are released when burning the coal. Luckily we don’t burn much coal in the UK anymore; the UK National Grid is predominantly powered by natural gas, which releases comparatively fewer emissions. Similarly to coal, most of the emissions from natural gas are released when the gas is burned. Conversely, for solar and wind plants, almost all of the emissions are released during the construction phase, and operational emissions are extremely low or negligible. You can see the live-makeup of the UK National Grid at any time online at Grid Watch⁴.

The proportion of renewable energy in the grid is growing year on year, now accounting for 29% of all electricity. As you can see in the table, the carbon emissions from renewable energy production are considerably lower than from coal or gas; in some cases by a factor of 10 or 20 times.

However the figures can be misleading when compared to the reality. For example high density (wood-chip) biomass can have a very low emissions rate if the feedstock (the wood chips) are sourced locally to the plant. In reality, about two thirds of the UK’s wood-chip biomass is imported from North America, driving up the lifetime carbon footprint. Compare this to the emissions for low-density elephant grass (Miscanthus). Elephant grass is very fast growing and is widely cultivated in the UK, removing the need for long distance transportation. Carbon released when burning elephant grass is recaptured much faster.

Overall, choosing a deep green tariff over a brown tariff is, one of the single biggest things you can do to cut your carbon footprint.
“Since opening we’ve generated energy to heat water and purchased renewable energy from Ecotricity. Our team are shown how the system works. It helps them understand how important reduction is, whether it’s heating water or turning off grills when they’re not in use. When it boils down to it, our green tariff is less expensive than a regular energy tariff”

- Tim Bouget, Café ODE
Price

- Decreasing your usage

Cost is very often the primary consideration when it comes to your energy supply - and a big factor in affordability is energy efficiency. A Carbon Trust study found that the average hospitality business spends 4p-6p per £1 of operating costs on energy, whilst the most efficient operators are spending closer to 2p. Reducing energy usage can clearly have a considerable effect on your bills, directly adding to the bottom line with no need to increase sales.

The quickest wins lie in timers for heating and cooling, ensuring all lightbulbs are LEDs, checking for draughts or windows that don’t close properly, and checking the seals around fridges, freezers and oven doors. If the opportunity arises, choosing highly efficient equipment during a refit can help save money in the long run. Purchasing equipment with an energy efficiency rating lower than “A” has been shown to be a false economy, costing considerably more to run over the course of its lifetime - just look for the Energy Saving recommended logo.

While new equipment may be out of reach in many cases, ensuring that equipment is regularly serviced and cleaned is essential. As parts wear out and filters become clogged-up, they consume significantly more energy - fridges with dirty filters can use 25% more energy than when new, and heavily scaled heating elements can use 50% more energy, and considerably more time, to reach temperature. Ventilator units are highly prone to lower performance and increased energy usage if not kept clean. Regardless of the savings, having equipment serviced regularly will help avoid any nasty surprises.

Kitchen layout can also affect efficiency; fridges and freezers located near ovens and burners, or in a poorly ventilated location will have to work much harder to stay cool; and ventilator hoods located a long way from the external opening have to work much harder to remove steam and smoke.

As previously mentioned, monitoring usage allows you to know the peak and trough hours and identify the specific practices that are costing the most money.

A typical restaurant using brown energy would produce 13,243 kg CO₂ every year

It would take 6,622 trees one year to absorb that much CO₂

If the same restaurant was using green energy, it wouldn’t produce any CO₂ at all!
People

- **Creating accountability in the business: grow the stakeholders**
- **Staff training in practical applications in kitchens**
- **Developing Back Of House (BOH) signage featuring best practice and tips**

Engaging your team will determine the success of energy reduction projects, leveraging employee behaviour can act as a quick route to success and improve overall engagement.

Give kitchen staff responsibility for identifying equipment and processes where a lot of energy is wasted - they know the kitchen and their daily behaviour better than anyone. Ask each member of your team to suggest something they’ve observed in the restaurant that could be wasting energy, and to suggest how it could be improved.

Use this knowledge to explore where procedures can be made more efficient, such as labelling equipment that can be turned off at the plug overnight, or not turned on until lunch service, instead of first thing in the morning. Turn-on, turn-down, turn-off procedures and night-time switch-off schedules are quick wins to reducing avoidable energy usage. Creating policies for the use of equipment can also help, such as only running dishwashers when full or switching off ventilator hoods when not cooking under them. Modern equipment is rapidly automating these practices (induction hobs switch off as soon as the pan is removed), but simple, regularly-reinforced staff training can have a similar impact with older equipment.

Turning gas rings, grills and fryers off (or at least down) when not in use has the dual effect of reducing the temperature of the kitchen, improving the working environment, and also making the fridges work less hard to keep cool. Consider the areas of your business that are simultaneously being heated and cooled.

Work with a senior chef to create accountability within the team for ensuring standards are maintained, start integrating targets into the team’s key performance indicators (KPIs). Incentivising good practice can kick-start the process, but do not expect your team to absorb all of the information right away. Put up signs around the kitchen and other back of house areas (such as under light switches, or by windows) to reinforce the message and use the energy monitoring data to identify which training areas need recapping.
Five actions to tackle your Carbon Footprint

1. Monitor and manage your energy use

2. Train staff to work more efficiently, set time-bound targets and work towards them

3. Replace filament lightbulbs with LEDs and ensure all new equipment has an energy efficiency rating of A+ or better

4. Empower green champions on site to innovate and improve efficiency

5. Switch to a deep green energy tariff
References


Change, International Panel on Climate Change 


www.gridwatch.templar.co.uk