INTRODUCTION TO ENERGY

Energy includes any kind of fuel source that an accommodation provider uses to generate power. It includes power for lighting, appliances, machines and vehicles. At Travelife we ask our hotels to consider the following:

- The **types** of energy they use
- Where they **source** energy from
- What they **use** energy for
- How much energy they **consume**

We look at each of these later in this document but you might find it helpful to first learn about the general environmental impacts of different energy types.

ENVIRONMENTAL IMPACTS

There are many different types of energy and just as many ways that each one can affect the environment. Here we have summarised the main impacts that the accommodation sector can help to improve:

Greenhouse gas emissions

Greenhouse gases are substances that trap energy from the sun and help keep Earth at the correct temperature for life to exist. Energy, especially energy produced by fossil fuels (oil, coal, natural gas), is a major contributor of greenhouse gases. Due to new technology and a dramatic increase in the world's population, we are now creating too many of these gases. This is causing the atmosphere to get too warm and we are already seeing signs of instability that is changing our climate in negative ways. Scientists and governments around the world are concerned with reducing the amount of greenhouse gases we produce.

Pollution

The production and consumption of energy, especially things like oil, coal and petrol/gasoline contaminate the atmosphere and reduce air quality. In some countries this is particularly bad and can create serious health issues. There are other environmental impacts on biodiversity, air, soil and water quality that come from the improper disposal of the waste generated by energy production and supplying energy to the places where it is used via things like pipelines and shipping.

Resource management

Earth has a finite supply of fossil fuels like oil, coal and natural gas. We are using so much of it that there is a risk that it will run out meaning that future generations will have limited energy sources. Many scientists and governments agree that we need to reduce our reliance on fossil fuels by switching to renewable energy sources. However, even these can have an impact on the availability and quality of natural resources if they are not managed in a sustainable way. For example, if hydropower plants are not properly managed they can disrupt natural flows, ecosystems and human access to fresh water.

HOW CAN THE ACCOMMODATION SECTOR HELP?

Travelife Certification helps your business minimise the impact of the energy you use by focusing on reducing the amount of energy your business consumes.

We have provided tools and resources to help you manage this and we encourage you to use them and to share them with your staff. The best news is that by reducing your energy consumption you will be reducing your operating costs too.

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YOUR ENERGY TYPES AND SOURCES

Travelife expects Certified Members to identify all of the types of energy they use and where each type is sourced. This helps you decide where you can make improvements to your energy consumption. To begin you will need to understand some of the more common terms used that we have outlined below. We have produced a much larger list at the end of this document that explains all of the common terms that we use as well as the different energy types and sources that accommodation providers might work with.

Energy type or fuel type: What kind of energy it is. Here are some of the more common types of energy used by accommodation providers:

Electricity | Natural gas | Diesel | LPG (propane, butane) | Kerosene | Petroleum/gasoline | Wood | Coal

Energy source or fuel source: Where you get the energy. Here are some of the more common types of energy sources used by accommodation providers:

Energy Type	Common Sources
Mains electricity	External private or public supplier
	Solar panels installed at the property
Mains gas (natural gas)	External private or public supplier
Diesel	Delivered by an external supplier
Oil	Purchased from a local fuelling station
Petrol/gasoline	
LPG/autogas for vehicles	
LPG	Delivered by an external supplier
Butane	Purchased from a fuelling station
Propane	Purchased from a wholesaler, supermarket or other type of retailer
Kerosene	
Coal	
Wood (including charcoal)	Delivered by an external supplier
	Purchased from a wholesaler or retailer
	Foraged/collected from your property

Sources used by your external suppliers

The source of energy that your supplier uses to generate electricity can significantly change your environmental impact. For example, a supplier that generates electricity from coal is going to result in you having significantly higher greenhouse gas emissions than one who uses nuclear or hydro energy. In some destinations, suppliers use a combination of energy sources.

We recommend that you find this information and you can usually get it from your supplier, local government or by doing some online research. If you are lucky enough to be in a destination that has a choice of suppliers, we recommend you research these and consider switching to one that uses lower emission sources. If a lower emission supplier is available, then it is recommended that you put plans in place to make that change over the next few years.

MEASURING AND RECORDING YOUR ENERGY CONSUMPTION

Once you have established all of the fuel types you use and where they come from, you will need to measure your energy consumption. This is the best way to make decisions about how to improve and the only way to measure your progress. All Travelife Certified Members must record their energy consumption in kilowatt-hours. Once you learn how to do this, it is reasonably easy to calculate your greenhouse gas emissions so we have provided guidance below.

Kilowatt (kWh) hours

Travelife requires that you record how many kilowatt-hours (kWh) you have used for each energy type you consume. You will need to do this on a regular basis and over the same time period, such as once per week or once per month. How often you record this will depend on things like the size of your property, and we know of hotels that take

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measurements daily. However, we recommend that any type of business updates their records at least once per month. Here is a process we recommend you follow and we have assumed that the records are being updated monthly.

1. Collect information on your total actual guest nights for the whole month.

2. Collect information on how much energy you have used from each energy type during the same time period.

   a. Mains electricity will be in kWh and taken directly from your meter or your electricity bill.
   b. Natural gas is usually in kWh but could be in cubic metres (m3) or cubic feet (f3). Readings can come directly from your meter or your gas bill.
   c. You can use purchase records, manually updated records or counts of empty containers to get accurate estimates of your consumption of other fuel types. For example, vehicle mileage records compared to average litres or gallons consumed per mile, how many propane tanks were replaced or how many bags of coal were used. For example, if your stores had 10 x 6kg bottles of propane on 30th June and there are only four left on 31st July, then you consumed 6 x 6kg bottles of propane, meaning that your total propane consumption in July was 36kg.

3. Convert the energy consumed into kWh using a reliable conversion number for each fuel type. You can get these from your suppliers or online. If that is not possible then you can use conversion numbers provided by Travelife for the most common energy types. You can view them in the Member Zone and note that you will need to first convert any non-metric measurements to the metric equivalent. For example, cubic feet to cubic metres.

4. Create a document where you can record all of this information and update it each month so you can track your performance. You will find a template with some examples in the Member Zone.

5. In this document you must record the total kWh for each energy source in the month.

6. Add up the kWh of each energy source to get the total energy consumption for the month.

7. Divide your total energy consumption by your total actual guest nights. This is your average kWh per guest night figure and you should be setting targets to reduce that number.

Guest night calculation example

ABC Hotel had 7,200 actual guest nights in July 2019 and their total energy consumption for the month was 80,000 kWh. ABC Hotel should use this calculation to establish their average energy consumption per guest night:

Total energy consumption of 80,000 kWh ÷ 7,200 guest nights = 11.11 kwh per guest night in July 2019.

Converting energy consumption to carbon dioxide equivalent emissions (CO_2e)

'Carbon dioxide equivalent emissions' is the scientifically correct way to refer to a measurement that compares the different greenhouse gases that contribute to the warming of our atmosphere. To make things a bit easier to understand we normally shorten this to 'carbon emissions' or 'CO_2e'.

This is not currently a Travelife requirement but we recommend that you get used to converting your total kWh to CO_2e. Not only is this an easier measurement for guests and staff to recognise due to extensive use of the term 'carbon emissions', but it is likely that Travelife will add this as a requirement over the next few years so it would be a good idea to get used to it!

The CO_2e produced from a mains supply can vary a lot by region and supplier so it is very important that you use a reliable unit conversion number. For example, if your supplier primarily uses coal to produce energy then the emissions will be a lot higher than a supplier who primarily uses hydropower. You have three options for finding an accurate conversion number:

– Ask your energy supplier for the conversion rate.

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- Use a reputable online CO_2e calculator that is specific to your country or region. These are often provided by national or local government, industry groups (such as an energy association) or environmental organisations.
- Look online for a conversion rate that is specific to the energy sources in your country or region.

For all other energy types/sources, such as diesel, LPG and petrol/gasoline, you can try the same options that are listed above but it is acceptable to use a more general number from outside your destination that can be found in numerous places online. Travelife has produced a table giving CO_2e conversion numbers from a UK government source that you can use. You can find our conversion numbers in the Member Zone.

We have also added a place to record CO_2e on our energy use template along with instructions on how to make the calculation. You can view this template in the Member Zone.

How to convert energy used to CO_2e

1. Take the total amount of energy from a certain energy type in a month. E.g. You used two litres of diesel in April.

2. Find the right CO_2e conversion factor (in this case 2.68779).

3. Multiply the amount of energy used by the conversion factor. E.g. 2 litres of diesel x 2.68779 = 5.37558 kgCO_2e.

4. That means that 5.37 kg of greenhouse gas emissions was produced by your diesel consumption in April.

Example calculation: 2l (of diesel) x 2.68779 = 5.37558 kgCO_2e

Once you have calculated the emissions from all of your energy types, you can add them up to get your total greenhouse gas emissions from energy. You can then add your energy and waste emissions to get an overall total.

SETTING TARGETS AND GOALS

Once you have records of how much energy you are consuming, you should set targets and goals to reduce your consumption.

Targets are usually numbers and they will need to be measured against a starting point and have a measurable deadline. Ideally, you should have at least one short-term and one long-term target. Here are some examples:

> Reduce your average energy consumption from 30 kWh per guest night to 24 kWh per guest night by the end of 2020.
> Reduce your greenhouse gas emissions by 50% by the end of 2030.

Goals can still include numbers, but they are usually about projects or actions. You still need to know your starting point, have a deadline and be specific so it is easy to see if you succeeded. You should also include a mixture of short and long-term plans. Here are some examples:

> Replace all fluorescent light bulbs with LED bulbs by the end of 2019.
> Have 80% of our energy come from renewable sources by 2030.

Your targets and goals should be:
- ✓ **Specific** and easy for anybody to understand.
- ✓ **Easy to measure** so that you can clearly see if they have been achieved.
- ✓ **Relevant and achievable**. For example, there is no point in setting a goal that you cannot afford to implement or spending time on an area where you cannot have a lot of impact.
- ✓ **Have a deadline**. This will help keep everyone on track.

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MAKE IMPROVEMENTS

The two main things that you can do to reduce your operating costs and greenhouse gas emissions from energy are:

1. Reduce your energy consumption
2. Switch to renewable energy sources

The first is easy to get started with and there are many things you can do that are no or low cost, yet very effective. The second might be more challenging depending on your circumstances, but is still achievable for most businesses. We have provided some ideas below to get you started.

QUICK FIXES

These are all either low cost, no cost or low effort.

General lighting

– LED lights are always more efficient and better for the environment than halogen or fluorescent bulbs. As you replace light bulbs, source only LED options.

– Using different types and makes of lighting on the same circuit reduces efficiency and the life span of bulbs, so always use the same brand and technology on one circuit. Even using LED bulbs from different manufacturers can interfere with lighting efficiency.

– If you have vending machines, you might find they have unnecessary lights that can be turned off or removed. Depending on what model your machines are, these can draw a lot of power and emit heat that causes any refrigeration unit to work harder in order to keep food and drinks cool.

General temperature control

– Check your hot water temperatures to ensure they are at the correct setting for health and safety (e.g. prevention of legionnaires disease) yet not hotter than necessary.

– The majority of people find a room temperature of 20 degrees to be comfortable but this can vary by a few degrees depending on climate. Make sure that thermostats in central areas are set correctly and take measures to ensure doors and windows are kept closed to maintain the right temperature. Ask housekeeping to check this is the setting in guest rooms and consider putting a notice next to the control unit letting guests know that this is the most comfortable temperature.

Equipment maintenance

– Ensure that external air conditioning units and solar panels are regularly cleaned so that they are running efficiently. In big cities, dry climates or places that are especially dusty or sandy, you should be doing this often. Think about how quickly a car in your destination gets dirty and dusty. This gives you an indication of how quickly your external units and solar panels will be becoming less efficient and how often they will need cleaning.

– Add a regular check of solar panels for leaks to your maintenance schedule. They are often overlooked due to rooftop locations and can quickly become inefficient if not properly maintained.

– Ensure all equipment and machinery (fridges, air-conditioning units, lawn mowers, vacuum cleaners and so on) is regularly and properly serviced to ensure they are running optimally.

Audit Story   A Travelife auditor once visited the roof of a large hotel to check the solar panels. Four out of 12 were not working. The general manager later discovered that they had been broken for six months but nobody had been on the roof during that whole time to check them. This had a serious impact on their energy bills that could have easily been avoided.

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Using equipment efficiently

- Walk through your entire property (including outdoor areas and a selection of guest rooms) and assess all of your lighting and equipment to see if it is needed, if it is needed during the day or during all seasons, if there is a better way to switch it off when not in use and if you can replace it with a more efficient option.

- Shut down computers when they are not in use. Older models in particular use a lot of energy so should be replaced with newer ones whenever possible, in the meantime you can help older ones run more efficiently by gently vacuuming the fan vents to remove dust build-up that causes the internal fans to run more than necessary.

- Train your staff to use equipment in the most efficient way possible. Consider things like the optimal load in a washing machine, the correct heat setting on a dryer, the best temperature setting in a fridge or the optimal power level of a vacuum cleaner.

- Spend some time looking for ways to reduce the amount of vehicle transfers taken. For example, have you given guests the option to reduce their carbon footprint by sharing an airport transfer with other guests arriving on the same flight rather than automatically providing several private ones? If your destination has a reliable and easy airport bus service, are you doing enough to promote this to guests as an option?

Procurement

- When replacing equipment, always buy the most modern and efficient alternative.

- If your destination has more than one energy supplier, check to see if you can switch to one that uses more renewable energy and/or has made sound environmental commitments.

- Review the items that are being shipped to your property over long distances and check for options to source them locally or from a supplier with a lower environmental impact. For example, a supplier using rail freight may have a lower carbon footprint than one using road freight.

Guest rooms

- If you have outdoor balcony or patio lights that guests can switch on and off, have housekeeping check that these are switched off during the day when they service the room.

- Are guest fridges turned on even when there is nothing in them? Could you keep them off and either have housekeeping turn them on before a guest checks in or put a small sign showing guests where to turn it on should they decide to use the fridge?

- If you are in a destination with high temperatures, be sure that guest fridges are not stocked with very warm drinks that may have been heated in the sun during storage or the restocking process. This causes fridges to use a lot of energy in order to cool the drinks, so see if there is a way to ensure they are at room temperature first.

- If fridges are in an enclosed space (e.g. a cupboard) without good air circulation, they will constantly use more energy to try to regulate the internal temperature. This will be expelled as hot air from the fridge's fan and interferes with the overall room temperature. Either move them out of such places or have holes drilled in the top and bottom of the enclosure to get more air circulating.

- Implement a towel and linen reuse programme and regularly check that housekeeping are following it.

- Consider only changing towels and sheets every four days during a guest's stay. If you are concerned about guest complaints, you can simply inform them that they can request fresh towels or a linen change whenever they wish.

- Consider whether you are putting more towels in guest rooms than are needed. If the maximum room occupancy is two, then put only that number of towels out and either let guests know that they can request

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more or put extra towels in a different place, such as a wardrobe, so it is easy for housekeeping to see they are unused and therefore do not need replacing.

– If you use key cards to activate power in guest rooms, you may have ones that a guest can override by putting any type of card in the slot. This means they can still leave on lights and air conditioning when they are not in the room. It might help if you only give one key card per room, only offering a second one on request and put a note next to the key card slot reminding guests of the importance of turning things off when they leave the room.

– Put small signs next to air-conditioning/heating control units that remind people to turn off the unit when doors or windows are open. You could use a graphic rather than words to save you translating this into multiple languages. Alternatively, you could install sensors on the doors and windows that automatically turn off air conditioning when they are open.

– Put information in rooms reminding guests about ways to help reduce greenhouse gas emissions by saving energy during their stay.

Central guest facilities

– Ensure that staff are trained to backwash pool filters for the correct amount of time. It is common to find that backwashing is running for much longer than necessary and this has a high energy impact.

– Does your heated swimming pool need to be heated all year? Can it be set to a lower temperature?

– Our auditors often find that saunas and steam rooms are running all day and into the evening, even though they are rarely being used. Consider turning them off outside peak times and/or reducing the temperature.

– Are you leaving a jacuzzi running when nobody is using it? You could turn it off during off-peak times or simply ensure guests can turn it on and off themselves, then train staff to regularly check it is turned off when not in use.

– Do you leave televisions running all day in the gym? Consider switching them off outside peak periods and putting up a sign telling guests to call the front desk if they want a staff member to switch it on.

– Are guests using more towels than necessary in the spa, gym or the pool? If these areas are staffed it might be possible to issue individual towels or to remind guests via signage about the environmental impacts.

Kitchens

– Ensure that fridges in your kitchens are regularly cleaned and defrosted. They should be clear through to the fan coil in order to be operating efficiently. Ice build-up can lead to a lot of unnecessary energy consumption.

– Instruct kitchen staff on the importance of always closing fridge and freezer doors. This is a very common problem and can have a major impact on energy consumption.

– Regularly check the condition of plastic strip curtains in kitchens and quickly make any necessary repairs or replacements.

– Avoid putting hot food and liquids into fridges or freezers. This has a drastic impact on the energy the equipment consumes in order to regulate the temperature. It is better to get food and liquids close to room temperature first but always make sure you are not compromising health and safety guidelines.

Staff areas

– Put signs or stickers in staff areas reminding them to switch off lights and equipment when not in use.

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MODERATE COST AND EFFORT

Lighting

– Replace all lighting with LED options using the lowest possible wattage. This can be done gradually but keep in mind that in order to comply with the Travelife standard at least 50% of lighting in guest areas must be energy efficient before your second audit.

– Replace decorative outdoor lighting with solar powered options, leaving electric lighting for emergency lights and those required to stay on all night for health and safety reasons. In some areas you may be able to use motion sensors to guide people at night, rather than leaving lights on all the time.

Timers and sensors

– Using timers and sensors to control lighting, air conditioning and equipment is an investment that will pay off over time in lower energy bills. You can start in back-of-house and central areas before investing in technology for guest rooms.

– If you decide to install or replace an automatic key card activation system for guest room electricity, choose a system that is linked electronically to the unique room key. This will prevent guests from using other types of cards to override the system and thus leave the power on when they are not in the room.

General maintenance

– Ensure that all internal and external pipes (both hot and cold) are properly insulated to prevent energy loss.

– Insulate outdoor pipes that are exposed to sunlight with a material that is either white or reflective. This will prevent energy loss and lengthen the lifespan of the pipe.

– Bird droppings can reduce the efficiency of solar panels so install anti-bird spikes or a similar solution that prevents birds from perching on or above panels.

Central guest facilities

– Review the use of pumps and air jets to create bubbles and other types of water movement in jacuzzis and swimming pools. These can use a lot of energy and may not need to be on all the time. Consider installing buttons so that guests and/or staff can easily turn these features on and off as required.

– Consider using a liquid pool cover that not only reduces the loss of heat and water, but can also reduce the depletion of pool cleaning chemicals.

HIGHER INVESTMENT WITH LONG-TERM REWARDS

– Install technology such as motion sensors and/or timers in guest rooms, central areas, outdoors and in your grounds to ensure that lighting and equipment is only used when needed. Do thorough research when sourcing the best solutions for your property to ensure you are using the most efficient technology that will have the highest impact for the longest amount of time. Motion sensors generally work better than key cards to control energy use in guest rooms.

– Replace older equipment with the latest most energy efficient technology and develop a plan and budget to continue doing this indefinitely. This applies to large equipment like air-conditioning units and restaurant fridges through to small items like kettles and coffee makers, but you should prioritise equipment that draws the most power or emits the most pollutants.

– Install air curtains over entrances and large windows that are continually open to the outside in hot weather; this will trap cold air inside resulting in lower energy costs from regulating the room temperature.

– Consider installing solar panels and other renewable energy solutions that best suit your property.

– Spend time with architects and engineers to fully assess energy efficiency in new builds and refurbishments so that you can reap significant environmental and cost savings. For example, using the latest insulation in walls and ceilings could greatly reduce ongoing operating costs and carbon emissions.

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ASSESSING AND REPORTING PROGRESS

Travelife expects Certified Members to have a continuous improvement cycle. That means that you will need to complete the following steps at least once every year:

– Reassess your operations each year to look for ways to improve your energy consumption.
– Use your consumption records to compare your performance to previous years.
– Review your progress with reaching your targets and achieving your goals.
– Recommend improvements to make over the next year.
– Set new short-term goals and targets.
– Include your findings in an annual report that is reviewed and discussed by senior management.
– Include the appropriate parts of your findings in your annual public sustainability report. This normally includes progress against current goals and targets along with any new goals and targets.

The energy assessment

This should assess all areas of energy consumption that are relevant to your property. They are likely to include:

Lighting | Water heating | Air temperature heating and/or cooling | Ventilation | Laundry | Kitchen appliances | Swimming pools and spas | Water treatment installations

As you assess each area you should ask the following questions:

✓ **Have you reduced energy consumption since your last report?**
You will need to compare your records and show what (if any) savings you have made. You should try to identify what worked well and what did not, and use this to make recommendations for the steps you should take in the next year.

✓ **What contribution is the area of consumption making to your overall energy use?**
Try to be as accurate as possible in terms of calculating the kilowatt-hours (kWh), cost and/or carbon emissions (kg CO_2e) for each area. Sometimes you will have to use estimates. The purpose of this is to show you what areas you should focus on to achieve reductions.

✓ **What is currently being done to reduce energy consumption?**
You should list the things you are currently doing to control use in each area and try to assess how well they are working. For example, automatic key card activation or regular checks that pipes are well insulated.

✓ **Are there ways to further reduce energy consumption?**
For example, are you using the latest technology? Are guests and staff being told about ways to reduce use? Is equipment being properly maintained?

✓ **What short and long-term improvements could you make?**
This will help you plan for making further reductions in your energy consumption. You should group these into short-term and long-term initiatives, along with ones that are low cost and ones requiring a bigger investment. For example, a short-term/low-cost improvement could be replacing neon bulbs with LED bulbs. A long-term/higher investment improvement could be installing light sensors in all hallways.

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COMMON ENERGY TERMS EXPLAINED

We have provided some explanations to help you and your staff understand some of the more common terms used when discussing energy management in accommodation. We have tried to keep them short and simple, so for scientific explanations or a more detailed understanding, you will need to conduct your own research.

THE DIFFERENCE BETWEEN RENEWABLE, NON-RENEWABLE AND CLEAN ENERGY

Renewable energy: This comes from natural sources that are either in unlimited supply (wind, sunshine) or those that are in abundant supply and/or are naturally regenerated (water, geothermal). In other words, the planet is not likely to run out of these sources. They also have a lower environmental impact on the atmosphere because they release fewer gases that can heat up the atmosphere and are cleaner due to less pollution. There is still an environmental cost in terms of producing this energy and getting it to homes and businesses, but the impact is significantly lower than other energy sources.

Non-renewable energy: This comes from fossil fuels like coal, oil and natural gas. The planet has a finite supply of fossil fuels and because the population of the world is growing along with use of technology that consumes energy (e.g. cars, planes), there is concern amongst energy companies, governments and scientists that we need to reduce our use and reliance on fossil fuel. The production and use of fossil fuels is a big contributor to air pollution (e.g. car exhaust fumes) and they release gases that warm up the atmosphere a lot more than any other energy source.

Clean energy: This is energy that does not generate any harmful pollution. Most renewable energies are also clean, but there can be exceptions that normally come from the way the energy is produced. Nuclear energy is also considered to be clean as it does not produce air pollution. Generally, any energy that does not involve coal or oil is a cleaner option.

TYPES AND SOURCES OF ELECTRICITY

Electricity or mains electricity: This is energy that comes from an external supplier or that is produced on your own property using things like solar panels and wind turbines. Put simply, it is the electricity used when you switch on a light or a piece of equipment that is connected to the electrical circuits at your property.

Natural gas: This is a fossil fuel that generates electricity. If gas is supplied directly to your property, it usually comes through a mains supply and is provided by an external supplier. It is not renewable but it does produce fewer greenhouse gas emissions than oil or petroleum.

Nuclear energy: There is some debate about whether nuclear power is renewable or non-renewable. The process of creating nuclear energy is renewable but the products used to make it are not. Nuclear energy produces fewer emissions that pollute and heat up the atmosphere. However, the process of creating nuclear energy generates radioactive waste and if it is not managed properly it can be devastating to people and the environment for many years. There are strict national and international regulations in place to prevent this.

Coal: Coal can be used by energy companies to generate mains electricity and it can be purchased directly by a business to be burned for heating and cooking. Coal is not renewable and is a significant contributor to air pollution.

Solar energy or solar power: This is generated by panels that absorb energy from the sun and convert it to electricity. Some destinations have solar farms that produce energy for electricity companies. Many private homes and businesses use solar power to supply all of their electricity or to supplement an external supply. Another common use for solar energy is smaller outdoor fixtures like lights and irrigation timers. It is completely renewable.

Wind power: Turbines are used to generate energy from wind. Some destinations have wind farms that produce energy for electricity companies. Many private homes and businesses use smaller wind turbines to supplement their electricity supply. It is completely renewable.

Hydropower: Dams are used to generate electricity from the flow of water that is then used on a mains electricity supply. It is a renewable energy because Earth continually produces water. However, often we consume more water than is available either due to droughts or due to rapid population increases. That can affect the efficiency of hydroelectricity at certain times.

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Geothermal power: Electricity is produced using thermal energy generated from heat below the Earth's surface that is used for a mains electricity supply. It is a renewable energy because the amount of energy used is tiny compared to the heat our planet contains. In some destinations it is possible for businesses to directly source some geothermal energy to supplement their overall energy supply and consumption. The most obvious example is using natural hot springs instead of a jacuzzi!

OTHER TYPES OF ENERGY

Fuel vs energy: Fuel is what is used to create energy. For example, petrol/gasoline is a fuel that creates energy to operate a car.

LPG or liquefied petroleum gas: This is gas in a liquid form and this term can be used to describe both butane and propane gas. It can be used to fuel vehicles and in this context it is also known as 'autogas' in some countries. It is mainly produced from fossil fuels and is non-renewable. However, it generates fewer greenhouse gas emissions than petrol/gasoline or diesel.

Butane: A liquid gas that accommodation providers often use to fuel portable heaters and it can also be used as a refrigerant. It is a non-renewable source made from natural gas (a fossil fuel).

Propane: A liquid gas that is commonly used to fuel outdoor cooking (barbeques) and heating. It is also used to provide cooking and heating for buildings that are not connected to a mains gas or electricity supply. It is a fossil fuel and a non-renewable energy source.

Biofuels, biodiesel and bioethanol: To keep things simple we have grouped these together as fuels that are made from renewable biological processes rather than non-renewable fossil fuels. They are already being used in many countries to replace or supplement 100% mineral fuel sources (fuels made entirely from fossil fuels) like diesel and petrol/gasoline. They produce significantly fewer greenhouse gases and pollutants than 100% mineral fuels.

PERFORMANCE MEASUREMENTS

We have focused on the measurements we use at Travelife. There are many more that you can research online such as 'Btu' and 'Mcf' that can be used to measure gas consumption.

Kilowatt-hours or kWh: A common way to measure electricity consumption, especially from a mains supply. Most electricity meters and bills show use in kWh. Other fuel sources such as diesel, oil and LPG are usually purchased in litres, cubic metres, gallons or cubic feet. In order to measure total energy consumption from these fuel sources, they need to be converted to kWh so they can be directly compared to your mains electricity consumption.

Carbon emissions (CO_2) vs carbon equivalent emissions (CO_2e): This is the amount of carbon dioxide released into the atmosphere. In terms of energy it refers to the carbon dioxide generated by electricity and other fuels types. Whilst carbon dioxide is one of the leading contributors to global warming, it is just one of several greenhouse gases. Another leading contributor to global warming is methane that comes from many sources. One major source is the production and disposal of food.

Because the accommodation sector consumes a lot of food and produces a lot of food waste compared to many other industries, Travelife thinks it is important to measure success by looking at the greenhouse gas emissions produced by energy and food. Therefore, we use the carbon equivalent emissions (CO_2e) that factor in all greenhouse gases, not just carbon dioxide.

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