efficiency – unlocking cheaper, greener living





The First Law limits us to only ever breaking even - energy cannot be created or destroyed, only converted from one form to another. The Second Law says we can never break even, and will always lose - we can never convert all of the energy in fuel into useful work.

energy efficiency

UK Final energy end use consumption 2020 (121 Mtoe)

UK CO2 Emissions by end use 2020 (406 MtCO2e)



Residential energy use is a huge part of the equation



Source: All data from BEIS

So what? (whether you're here to save the planet or your wallet)





Turn down your thermostat

Almost half the money spent on energy bills is absorbed by heating and hot water costs.

Turning your heating down by just one degree could save up to £80 a year.



Monitor your usage

Keeping a watchful eye on your consumption levels can help you decide if and when you have to change the way you use energy.

Installing a Smart Meter lets you track your consumption with accurate and real time information.



Turning off appliances

Turn off at the plug to save an average of £30 a year.

Use smart sockets to allow you to switch off unused appliances off.

Turning lights off when you don't need them – motion or smart enabled devices.



Be smart using water

You can save around £25 a year by washing up in a bowl rather than using a running tap.

More efficient or aerated shower heads/taps - cut your time showering by a minute, don't overfill your kettle...



Washing clothes at a lower temperature

Washing at 30 degrees rather than 40 – removing one wash cycle per week could clip £5 off your annual energy bill.

Or try increasing airdrying of clothes rather than tumble drying?

Demand avoided through behavioural change (for free!)

Demand avoided through efficiency

	Insulate your roof, floors and walls	Roof, cavity wall, solid wall, floor, roof and loft insulation prevents unwanted heat loss from your home – insulation can be complex and expensive but can save $>$ £135 off your energy bills each year if you live in a typical semi-detached house.
	Draft proofing your home	Draught excluders or draught-proofing kits prevent further heat loss - seal cracks in floors and skirting boards, line your letterbox and block an unused chimney to reduce your heating bills by up to £35 a year. Buy plastic lining for your windows.
	Invest in double glazing	If your semi-detached home is entirely single glazed, you could save as much as £110 a year by installing A-rated double glazing. If not, buy plastic lining for your windows to save energy and keep more heat in.
- Arr	Install a new boiler	(if not going for a heat pump), save energy by upgrading your old boiler to a new A- rated condensing boiler with a programmer, room thermostat and thermostatic radiator controls. Upgrading from a G-rated boiler could save around £300 a year.
H	Upgrade to more efficient appliances	When it is time to swap, going for one with a high energy-efficiency rating can be worth the investment. Pay attention to energy ratings - shift to lower energy lighting systems including LED light bulbs.

Electrify your heating via a heat pump

Likely one of the most impactful changes you could make – heat pumps will be fundamental to our transition to a low carbon future and will likely save you money in the process.

Using (lower carbon) electricity, a heat pump captures heat from outside and moves it into your home. The heat energy delivered to your home is much more than the electrical energy used to power the system.

Many (many) models indicate that the UK will need millions of heat pumps will need to be installed in homes over the next 10-15 years to meet our net zero targets.

Over to you Bean!!

Get solar, get an EV

Solar costs make it an increasingly attractive option – reduce your dependency on the grid and energy prices

An EV can be >70% efficient than gasoline or diesel - total cost of ownership savings can be significant – environmental savings then linked to green tariffs or rooftop solar

Both enables other cost savings through load shifting

Cooking on gas 'electrons'

Shifting cooking to electrical appliances decrease dependency on gas while increasing potential to be fuelled via renewable means – either rooftop solar, or via green electricity tariffs.

Demand avoided through electrification

Smart optimisation

Install a smart thermostat

Smart thermostats can make your heating more efficient by only warming the rooms you are using.

They learn how long it takes to heat your home, so they can have it at the right temperature at exactly the right time. Most people use energy in the evening between 6-9pm with the peak at 8pm

The ultimate smart solution – load shifting and demand side response

Time of use tariffs, or TOUs, encourage customers to use energy at off-peak times.

The TOU flexible tariff offers people cheaper electricity prices when demand and energy prices are at their lowest. A household's smart meter monitors prices and this data can be used to move some types of energy use to cheaper periods, helping to avoid high, peak rate prices.

Highly suited to EV owners, houses with battery storage or thermal storage allowing load shifting to non-peak (cheaper times of the day)

Relieve pressure on the grid by balancing demand with supply, optimising use of renewables





Think about out energy use – go after the biggest levers in terms of the changes you make...

Don't underestimate the value of easy to implement, small changes that become habit – many small things can make a big difference...

Don't forget to compare energy quotes when the time comes:

Conditions in the energy market right now mean that switching suppliers to save money is challenging, but look for options to switch to green or time based tariffs to make the most of other optimisation opportunities...

Key takeaways

