



energy saving



what is it?

It's reducing overall energy use, and our individual contributions to that. Many energy-saving sites offer relatively simplistic solutions, but tend to omit the fact that a) global energy use grows relentlessly every year; so whatever we're doing in terms of energy saving isn't working overall; b) domestic energy figures don't include the energy used to make our fridges, cookers and other goods, and then transport them from the other side of the world; c) making sure your phone charger isn't left on (because 'every little helps') is good, sure – but not if you think it's enough to balance the effects of all the extra gadgetry we're using nowadays; without looking at the bigger picture, this can breed complacency.

But the most important thing to understand is that energy saving measures alone can't reduce overall energy use, because of the Jevons Paradox. In the 19th century, a certain Mr. Jevons noticed that James Watt's steam engine, which was much more efficient than Newcomen's engine, and was therefore supposed to save coal, had instead resulted in a massive increase in coal use. He realised that this was because coal became relatively cheaper to use, so people used more of it, and it caused the economy to grow, so everyone had more spending power, they bought more stuff, which required more fuel to produce and transport, and so on. This still happens today. For example:

- Cars become more energy-efficient; it becomes cheaper to drive; cities sprawl; people move to suburbs and drive to work and shops; more roads are built; more car journeys; more fuel used (vehicle-miles in the US doubled from 1980 to 2010).
- The efficiency of air conditioning improves all the time, but now more energy is used for US air con than was used for everything in 1955!
- Planes are 4 times more fuel-efficient than in 1960, but we're burning 17 times more jet fuel.



A pan with a lid will need less energy to heat.



People often negate the benefits of LED lights by installing too many of them.

You get the idea. Efficiency causes the economy to grow, which results in more energy and materials used overall.

The Jevons Paradox has been argued against in various (not-very-convincing) ways, for example:

- That owners of more energy-efficient cars don't drive so much more that it uses more fuel than is saved via efficiency. But that's only taking into consideration the direct (micro) effects. They forget the macro effects – in a growing economy, more materials and energy will be used overall, and this is what's actually happening, in the real world.
- That only 6-8% of money saved via energy efficiency is spent on energy, so overall, the effect is positive. But 1) other things damage nature, not just energy use 2) money not spent on energy, even if spent on something benign, stays in circulation to be spent on other things. It's not all about just one transaction, it's about the total amount of money sloshing about in the economy. The more of it, the more economic activity and the more environmental damage.
- That efficiency measures have helped reduce *per capita* energy use in the West, but this ignores the fact that manufacturing has been exported. Plus nature doesn't care about a country's *per capita* energy use, only about global energy consumption, which is rising relentlessly (along with raw material use), because the global economy keeps growing.

In fact none of the technologies or activities on our site will help bring about a sustainable society as long as global GDP is perpetually growing. Stabilise the global economy, and then we can begin to see some light at the end of the tunnel.



what are the benefits?

We have to reduce energy use overall to stop anthropogenic global warming. Although nature pumps a lot more carbon into the atmosphere than the economy, it always absorbs as much as it emits. We've upset the balance by digging up ancient, stored carbon in fossil fuels and burning it, adding to the concentration of CO₂ in the atmosphere every year.

Another benefit is that we won't need as many power stations / wind farms / solar panel factories etc., with all the accompanying roads, carbon emissions, pollution, mines, waste etc. Plus you'll save money, which means you can work a bit less (which is actually essential if the energy saving measures are going to work, as explained above).

what can I do?

There's not much you can do to change the government's view on perpetual economic growth, but you don't have to contribute to it with your consumption. However, you'll sometimes hear things like: 'it's not worth reducing our energy use, because China's energy consumption is exploding'. Well, China's *per capita* energy use is way lower than the West's; and China uses most of it to produce stuff for Western markets!

There's so much energy saving advice out there, that we'll just give you a taster sample here. Many of them are just common sense.

Downshifting / not buying things: most advice tends to be about reducing energy bills - so you'll have more money to spend. Even if you spend it on something that doesn't require much energy, say a massage, then that money is in the economy, and will be used over and over again. This, in microcosm, relates to the Jevons Paradox mentioned above. Here are some ideas on energy-consuming kit that you could do without:

- Air con: in hot countries, fair enough (although new builds could follow the Middle Eastern practice of central courtyard with a pond, doors open to the courtyard at ground level, windows open on the top floor on the outside; cool air is drawn up through the house); in the UK, maybe all we need to do is open windows.
- Patio heaters (having a real fire sometimes is not the same, as wood is part of the natural carbon cycle, unlike fossil fuels).
- Tumble dryer.

- Leaf blower, and maybe even vacuum cleaner (stiff brush does both jobs).
- Second homes (we had to explain to someone at an event – loft insulation in a second home in Slovenia does *not* reduce energy use!).

Changing behaviour: most topics on our site reduce energy use. Here are a few specific ideas:

- Don't leave appliances on standby, and do turn off your phone charger. There – we said it.
- Change bedtimes and getting-up times to correspond more to daylight.
- Turn down thermostats and wear a fleece instead of rushing to turn the heating up.
- Don't let your fridge go below 3°C, or the freezer below -16(ish).

Purchases: then it's down to things we can buy (but only if we really have to buy them):

- A-rated appliances.
- LED lights (but not too many) / candles.
- Increase the thickness of your loft insulation from 50 to 250mm and you'll save as much energy as you would by installing a solar hot water system.

See our further info page for many more energy-saving ideas. And finally, if this stuff fascinates you, maybe a career as a domestic energy assessor is for you.

resources

- lowimpact.org/energy-saving for more info, courses, links & books, including:
- Curt Sommer, *Home Energy Savings*
- Martin Cook, *the Zero-Carbon House*
- Laura Cook, *the Energy-Efficient Home*
- energysavingtrust.org.uk – Energy Saving Trust
- bit.ly/3mIFfYs – good article on Jevons Paradox
- withouthotair.com – David Mackay on energy



A reflective sheet behind a radiator will reflect more heat back into the room.

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