



CHAPTER 5

YOU HAVE THE POWER!

It is time for us to stand and cheer for the doer, the achiever, the one who recognizes the challenge and does something about it

- Vince Lombardi

Global warming seems like such a huge problem that it's easy to feel helpless, but in fact there are many things we can do on a personal level to help. A lot of them don't cost much and many will end up saving you money. Perhaps most importantly, we need to change our attitudes and behaviours and that's not as hard as you think.

Besides, if we don't rise to the challenge, climate change will force our hand anyway (most likely in ways we won't like). The Stern report says that the cost of global warming could reach up to 20% of world GDP if we don't act. The time for action has come. It doesn't mean we have to experience sharp cuts in living standards but it does mean that we have to live smarter and grow in a different way. More of the same is definitely not better.



We can start by informing ourselves. Watch Al Gore's movie *An Inconvenient Truth*. Some people aren't open to watching this movie because they feel there is a political agenda behind the film. Climate scientists have however stated that Al Gore has presented the science of climate change exceptionally well.

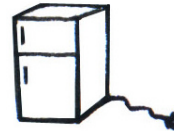


Whenever you turn on a light, use the microwave or drive a car you are releasing greenhouse gases into the Earth's atmosphere. This

is because most of the energy required to power these objects comes from the burning of fossil fuels. By using more energy efficient appliances you can use less energy to do the same things, save money and reduce your greenhouse gas emissions at the same time. Many measures need none or little up-front money (e.g. installing energy efficient light bulbs), but others need more (e.g. replacing an electric water heater with a solar water heater). There will be a payback time before the savings overtake the initial cost (just as in any other investment).

An energy audit (evaluation of energy consumption) on your home or workplace will help to prioritise the best ways in which you can save energy. Using energy-efficient light bulbs and appliances, turning

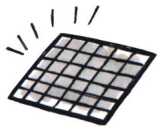
things off at the power point when not in use (10% of Australian household electricity is used by standby power), using a good old-fashioned clothes line rather than a drier and installing insulation, all cut energy use. Please note that compact fluorescent light bulbs (the energy efficient ones) contain a small amount of mercury (approximately 5 mg), and therefore need to be disposed of properly. 'Are they dangerous to use?' you may be thinking. When you consider that coal fired power plants release 40% of the mercury emissions in the U.S., we are better off installing energy efficient light bulbs.



One of the most energy-hungry appliances in the home is the fridge. In Melbourne (Australia), the 'Phoenix Fridge' project

www.phoenixfridges.com.au retrofits old fridges to make them more energy-efficient. The savings are two-fold. The house saves on energy and greenhouse gases, but the factories also don't need to use

energy to manufacture a whole new fridge. There is also no need to use energy disposing of the old one. You can find out the energy consumption of many electrical appliances online (www.energyrating.gov.au for Australians and www.energystar.gov for Americans).



Installing enough grid-connected solar photo-voltaic (PV) panels could make your house mostly energy self-sufficient and will greatly reduce your households greenhouse gas emissions. In the latest Australian federal budget the solar PV rebate has been doubled to AUD\$8 per watt (up to a maximum of AUD\$8000) and schools and community groups can now apply for a grant of up to 50% of the cost of a solar power system. There are also many new technologies on the horizon. An example is 'sliver cell' technology that promises to reduce the cost of solar PV systems.



By the laws of thermodynamics, all fossil fuel based electrical generating systems have a limited efficiency (often only around 35%) and inevitably make waste-heat as well. Usually even more energy must be wasted to remove this heat with a cooling system. Combined heat and power (CHP) systems (also called co-generation) utilise the heat instead, thus improving efficiency and saving energy. This is impractical with electricity provided from huge remote power stations. CHP systems can be used on an industrial, commercial or household scale. If more electricity is produced than needed, it can be sold back to the grid, cutting the pay-back time.



One of the most cost-effective ways to reduce household energy is to install a solar hot water heater. These save so much energy that they often pay for themselves in less than two years.

If you are building a new home, or renovating an old one, incorporate passive solar design. Tips can be found at:

www.greenhouse.gov.au/yourhome/technical/fs10.htm



A phone call may be all it takes to switch to some form of 'green power'. These are schemes set up by electricity suppliers whereby they guarantee that the energy you use will be sourced from a renewable energy generator which is less polluting. If 100% of electricity users choose green power, then the supplier must source 100% of its electricity from renewable energy generators. For a typical Australian house using about 6,700 Kilowatt-hours per year, the extra cost of green power is no more than about AUD\$5.50 per week. That's a muffin and a cup of coffee! You can easily find utilities offering green power in each state

(www.greenpower.gov.au in Australia and for people in the U.S.A.:

www.eere.energy.gov/greenpower/buying/buying_power.shtml).



Homes aren't the only greenhouse gas producers. Every litre of petrol you use driving your car releases 2 Kg of greenhouse gas into the Earth's atmosphere. By keeping your car tyres well pumped up, you will improve fuel consumption and save money at the same time. If possible, make your next car a hybrid or an electric vehicle (EV). Currently the only models available in Australia are expensive, but expect this to change in the next few years. Don't think that EVs are all turtles either. The Tesla Roadster EV (www.teslamotors.com) in the U.S. can drag off a Ferrari.

Some service stations have begun to offer fuel blends with some fraction of biofuel in the mix. There is much debate however over whether biofuels are

really greenhouse friendly, or even ethical, as carbon-storing rainforests may be trashed and food crops replaced to grow biofuel crops instead (www.biofuelwatch.org.uk).

Car pooling is a good way to reduce your car use and make friends at the same time. Better yet, leave your car at home and walk, cycle or use public transport. They all save on energy use and provide exercise. My friend even passed a university unit solely by reading and doing his assignments on the bus!



It is important to realise that air travel has a huge effect on the atmosphere and natural environment. Aviation emissions have 2-4 times more global warming effect than CO₂ from the same amount of fuel used by a road vehicle. A return flight from my city Perth (Western Australia) to Sydney emits approximately 2.4 tonnes of CO₂ per

passenger and a return flight from Perth to South America emits 10.2 tonnes of CO₂ per passenger. That's a lot of CO₂ when you consider that the average Australian household emits approximately 14 tonnes of CO₂ a year! The bottom line is avoid plane travel wherever possible. If you really have to, some airlines are currently offering a carbon offset scheme. Carbon offsets let you purchase activities (i.e. planting trees) that actively reduce global CO₂ emissions. Subsequently, this balances out your personal emissions.



Buying fresh local food (perhaps directly from farmers markets) can cut the amount of fossil fuel used in transport and refrigeration. But where can I find a farmers market? There are sites that are designed to help you locate them (www.localharvest.org in the U.S., www.farmersmarkets.org.au in Australia and www.farmersmarkets.net in the U.K.). Better still, you could even start to grow your own

fruit and vegetables.



A surprising fact is that by simply eating less red meat, we can each save a lot of

greenhouse gases. Going completely vegan can save more greenhouse gases than using a hybrid electric car. The reason is that livestock belch out methane and nitrous oxide (both potent greenhouse gases). Large quantities of energy are also required for food processing and to grow feed crops.

The table below shows the amount of carbon dioxide (Kg) that is emitted per kilogram of food.

Type of Food (1 Kg)	CO2 Emitted (Kg)
Fresh local fruit and vegetables	0.6
Dried fruit and nuts	2.4
Chicken	3.5
Beef and Cheeses	12.0

What impact does a cheeseburger have on the planet? Jamais Cascio (co-founder of www.worldchanging.com) calculated that every time you buy a cheeseburger from a fast food outlet you are emitting anywhere between 3.6 Kg and 6.1 Kg of

CO₂. This is due to all the processes that were involved to get the burger in front of you (clearing the land for the cattle, growing the feed for the cattle, storing and transporting the components as well as cooking and packaging). In America, the greenhouse gas emissions arising every year from the production and consumption of cheeseburgers is roughly the amount emitted by 13 million SUVs (Sport Utility Vehicle). Cascio's calculations show us that every action we take (even the smallest ones) can have unexpectedly profound consequences.



Everything we use takes energy to make, so reduce, re-use, and recycle as much as possible. Recycling many metals and plastics uses less energy than to make from raw materials.

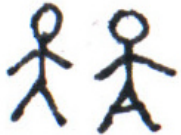
Every year 500 billion plastic bags are distributed. Most of this plastic can take up to 1000 years to breakdown and just ends up in landfills that emit harmful greenhouse gases. The solution is simple,

use a cloth bag for shopping instead of the plastic throw away bags and if you don't need it in the first place, don't buy it.



Forests store huge amounts of carbon (a tree can store up to a tonne of carbon dioxide over its lifetime), but the world's rainforests and old growth forests are being trashed at an alarming rate. Deforestation accounts for 20% of global carbon emissions (this is substantially due to fires lit in forests to clear land). According to the World Bank, forested areas equivalent to the size of Portugal are being cleared each year. This must be stopped. You can help by using recycled paper (each tonne purchased saves 4,400 kWh of energy, 30,000 litres of water and 19 trees) and buying timber only from accredited sources. You can also help nature suck back some of the carbon released by planting trees.

If some activity (i.e. driving a car or heating a home) does release carbon, then maybe it's possible to pay someone elsewhere to save or soak up the equivalent amount, making the activity carbon neutral. This is the idea behind carbon credits. Care must however be taken that the credits purchased really do lead to a reduction in emissions. Make sure the carbon credits are certified by a reliable authority. Gold standard accreditation (www.cdmgoldstandard.org) is an internationally recognised benchmark for carbon credit schemes. There are other greenhouse gases and they should be included in the accounting. Buying credits should also not be seen as an excuse to avoid concrete actions that will reduce your energy consumption.



Ultimately, the more people there are, the more greenhouse gases will be added to the atmosphere.

As mentioned previously, we need to limit the number of children we have to two or less.

This is particularly important in countries like Australia, Canada and the U.S. as we generate more greenhouse gases per person than anywhere else. Promoting access to education, job opportunities and family planning (especially for females) can reduce birthrates worldwide. You can help people around the world to develop sustainably without leaving your home by volunteering at www.nabuur.com. This website links you directly with people around the world who need assistance (local people tell you what they need and you give them help from behind your computer). According to World Bank estimates, around US\$84 billion per year (0.2% of world GDP) is needed to tackle malnutrition and give a primary school education to every child on earth. In comparison, the Iraq war has cost approximately US\$456 billion, or over US\$100 billion per year. The current world military budget is around \$US1 trillion per year. Imagine what would be possible if even one tenth of this money was redirected to educate young

people, produce contraceptives and create family planning programs.



Spread the word and start talking to your friends, neighbours, workmates and anyone else you know about climate change. Sustainability consultant Ben Rose says:

Avoid people who are negative, cynical or apathetic as they will waste your energy. Always work with proactive, positive people; they in turn will influence their proactive friends and social contacts. I always try to work with and surround myself with proactive, positive people. It spreads like ripples on a pond.

Contact your politicians, planners and media outlets. Our leaders need to know what we want and that we care. Make them feel the heat! Writing many short

letters with one or two points each is more effective than one long, complicated letter. You can also call up and ask to speak with your local political representative. If you are nervous about doing this, call their office after hours and leave a short voice message on their answering machine that expresses your concerns about global warming. Speak out and be a catalyst. It will make a difference.



Why else should you consider making the changes discussed above? In the words of Ben Rose,

This change of lifestyle is healthier, less stressful, more joyous and more dignified. It's also more free of the influences of advertising, fashion, meaningless competition and having to earn more money to get more things.

In addition, how can we keep our dignity if we know our lifestyle is contributing to destroying our beautiful world? It would be really hard for me to look my future children and grandchildren in the eye and admit to them that I knew all my overseas trips and large cars were destroying the fragile atmosphere and planet. That I knew I was robbing them of their quality of life but I continued to do it anyway because it felt great and I wouldn't be around to face any of the major consequences.



One thing is certain, if we act now to put the brakes on climate change, we can look forward to the future with excitement rather than fear. Don't ever let anyone tell you that you can't make a difference. All of us can make a huge difference if we are willing to change our consumption habits and tell others about global warming/climate change.



My family and I have changed our lives. We now live better and are happier with less. This year mum, dad and I pledged not to travel by air (therefore now take more holidays within our beautiful state of Western Australia), we catch public transport (this means I get to enjoy reading more often), we work less hours because our lives are now about more than just acquiring material possessions.