



#1 ENERGY PROBLEM

I Don't Know Where to Start

So you want to have a home that works better than a brand new home, warmer in winter, cooler in summer, much lower energy bills and reducing your carbon footprint. Good on you! But it can be a bit daunting, especially if you are new to this topic.

We had a similar “I don't know where to start” moment when we moved into our home. We literally had no idea where to start and we didn't even know that the words to describe what we wanted was an “energy efficient” home. We just wanted a home that wasn't freezing in winter, didn't cook us in summer, didn't cost the GDP of a small nation to run, or chuffed out double the carbon emissions of an average home.

So because we had “no idea” we spoke to experts in the industry- builders, architects etc. But they couldn't really help us either. The builders told us it was winter, we lived in a cold place and to “Suck it up- princess!”. The architects wanted to extend the house. It was already huge. It didn't need to be bigger. It needed to be warmer.

So we decided to test. We built a heat chamber, hired a cool room, built a test house and bought all the insulation that was available. We ran 2 minute timing tests with each different kind of insulation and charted the heat / cool performance curves of each type of insulation. That research took us 6 months! Once completed, we KNEW exactly what kind of insulation, what brand we were going to use, what rating we were going to use and how to install it. That research taught us that there were types and brands of insulation that we would never use- with good empirical evidence!

We then started testing draught-proofing products. A similar approach was undertaken and we made all the mistakes that everyone makes, like thinking that sticky seals in a door jam were going to work. It doesn't. It gets crushed and the self-adhesive glues give way when it gets hot. We tested for extremes of temperatures (oven and freezer) as well as UV. Over the years we have tested more than 1,000 draught-proofing products.

During our home retrofit, we often found existing products did not work well, were of poor quality, too expensive or just plain wrong. For example, throwing out perfectly good windows that just happened to be single glazed, was just not smart when secondary glazing would solve the problem.

So we developed some of our own series of solutions – later to become ecoMaster products. Our home is now rated 7.6 stars with zero energy cost and carbon emissions. Even with minimal heating, it is a cosy warm home during winter. Summers are cool with no air-conditioning, even when it is 46 degrees outside.

As we got further into our retrofit, we started to understand the unique nature of what we had just achieved. We started to share that knowledge and established ecoMaster to support other homeowners more easily down the same low carbon path. Our objective was to provide honest advice and effective solutions to enable others to retrofit their homes as practically and pragmatically as possible.

So in a nutshell- this is what we learnt.



Sometimes FREE GOVERNMENT STUFF isn't the best choice. Check this article for more information so you can make an informed choice.

1 SEQUENCE IS IMPORTANT

There is a sensible sequence to retrofitting each home. Every home is different so the sequence may be slightly different.

Energy Efficiency, at its essence, is doing more with less. Imagine your cosy, warm home with the dishwasher humming after dinner and the washing machine doing its thing, while you sit with your feet up enjoying your favourite show. So what makes this energy efficient?

2 CONTROL YOUR BIGGEST ENERGY GUZZLER

Simple.... 60% of your energy consumption comes from heating and cooling your home. Retaining that 'conditioned air' will reduce your heating and cooling costs significantly. How do you do that? By improving the thermal performance of your home – draught-proofing, ceiling insulation, underfloor insulation and window treatments.

3 DRAUGHT PROOF!

Australian homes are draughty – we need to convert uncontrolled draughts into controllable ventilation. Draught proofing is the single most effective thing you can do to your home to make it energy efficient. Unfortunately many people think 'sticky stuff' around doors or door snakes. These are things many of us have tried and, for the majority, they don't work well.

Our professional draught-proofing services utilises a range of around 400 products for sealing doors, windows, gaps and cracks, vents, exhaust fans etc. The change in your home after a professional has completed draught proofing is astonishing. The impact is immediate. You can save up to 50% of your conditioned air by [effective draught proofing](#).

NOTE: Do not draught proof a room that uses a gas appliance. The risk of carbon monoxide poisoning is real.

4 CEILING INSULATION

Ceiling insulation is a no brainer. For every \$1,000 you spend on heating, \$350 goes straight through an un-insulated ceiling. Many people have some insulation, but very few people know what level of cover they have and how well it is installed. Install [high quality insulation](#) that performs in summer and winter. Guaranteed for 50 years!

Whilst it might not be obvious, effective ceiling insulation requires that you have removed halogen downlights and replaced them with either surface mounted lighting or IC4 rated LED downlights which are energy efficient. Here is an example of one of the more efficient and effective halogen downlight replacements. Only IC4 downlights can be insulated over. If you do not have IC4 rated downlights, you will not be able to insulate over the top- meaning that the effectiveness of your ceiling insulation will be severely reduced. A 5% gap in ceiling insulation reduces its effectiveness by 50%.

5 UNDERFLOOR INSULATION

[Underfloor insulation](#) is toasty! Anyone who has had their timber underfloor insulated properly, raves about the change in their home and how much more liveable it is.

6 WINDOW TREATMENTS

Window treatments range from effective window covers (sorry – verticals and Venetian blinds don't cut it thermally) and pelmets are a great way to help retain your conditioned air. An even bigger difference you can make is to have double glazing. Now, before you click away with cries of 'I don't have the money for that', think about secondary glazing. Secondary glazing is about 1/3 to 1/2 the price of double glazing, looks beautiful and is just as effective as replacing all your windows with double glazing. [ecoGlaze is a secondary glazing system](#), Australian owned and manufactured product, right here in Victoria! All the benefits of double glazing, without the fancy price tag.

7 WALL INSULATION

Wall insulation will complete the thermal efficiency puzzle of your home. It is much better for this to be done during construction, but if your home pre-dates the requirement for wall insulation, this can be done respectively in some homes.

So, once you've tackled draught-proofing, ceiling and underfloor insulation and window treatments, your home should be feeling much more comfortable. It will also be MUCH more energy efficient.

8 APPLIANCES

When your appliances need replacement, select energy-efficient models and run them sensibly (i.e. only when full). How do you know they are energy efficient? Check this website www.energyrating.gov.au It will save you huge sums. Turn off all appliances at the powerpoint will then eliminate your 'stand by' power usage.

9 HOT WATER

Get on with installing your solar hot water system (around 25% of your energy bill)- either thermal solar or heat pump. Government rebates will play a part here, so do your research carefully.

10 SOLAR POWER AND BATTERIES

Once that is done, install solar panels on your roof sufficient to cover your (now significantly reduced) energy needs. So your home can power you. That will future proof your home from power bills forever, so you can get on with your life, without worrying about the cost of power! Smart.

Many people start with a roof full of solar panels and then retrofit the rest of their home. You will need significantly less solar panels to power an energy-efficient home, so save those funds and invest in energy efficiency BEFORE energy generation.

11 ELECTRIC VEHICLES

Once you have the bug for this stuff, jumping into an electric vehicle would seem to be a logical step. If you solar panels generate enough power, you can charge your car overnight from your battery and drive around with zero carbon emissions and no fuel costs.

ONLINE HELP?

Here is an online magazine that explains what we did to our home over the course of a few years to make it the haven that it is now.

NEXT STEPS?

Remember- its journey. There is no need to rush at it. Take one step at a time. ecoMaster is here to help you. If this is all too much and you want some hand-holding along the journey, you can start off by getting a deep insight into your home's overall energy efficiency performance. We conduct a thorough ecoHome Assessment in various areas in Victoria. From there, we will craft a specific home retrofit plan for you which you can perform in increments based on your budget, or all at once, or take the DIY path.

If DIY is your thing, you can discover more energy-efficient draught-proofing solutions that bring in maximum thermal comfort in your home without draining your pockets! Shop for a wide range of excellent home retrofit solutions for greater thermal comfort at www.ecoMasterStore.com.au

To progress your journey towards an energy-efficient home that loves you all year round call 1300 326 627 or email info@ecomaster.com.au.