# Australian Skeptics Guide to Free Energy Machines

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Imagine you have an ordinary one litre jug. Two things which I'm sure you'd agree with are that you couldn't pour more than a litre of water *into* it or empty more than one litre *out* of it.

Now imagine you had two such jugs, one full to the brim with water and the other empty. Pour the water from one jug to the other and back again. Repeat this process as often as you like. Is there any way you could imagine that you'd end up with more than one litre of water split between the two jugs?

The logical answer is "No." In fact, due to spillage and evaporation, it's more likely that you'd end up with less than one litre of water.

This is a fairly accurate representation of one of the most basic principles of physics, known as *Conservation of Energy*. This principle states that energy can change form, but can't be destroyed or created.

A good example of this is the production of household electricity in Australia. Most electricity in Australia is generated by burning coal. The coal has chemical energy. When it's burned, it releases heat energy. This energy heats water to steam, which turns a turbine (kinetic energy). The turbine drives a generator, producing electrical energy. We then use this electrical energy for heating, cooling, running the TV, and so on.

These processes aren't perfectly efficient. At every stage, some energy is lost as waste heat, which disperses in the atmosphere, and in time radiates into space, where we can no longer use it.

But there are people who believe that they've found some way around the energy conservation principle. They believe they've developed machines which, in effect, allow you to pour more than one litre of water out of a one litre jug. These machines are generally known as "Free Energy Machines," "Perpetual Motion Engines," or "Over-Unity Machines," though some of their inventors may not be happy with those terms.

Unfortunately, all the evidence available suggests that these people are either genuinely mistaken, or are being deliberately misleading. Conservation of energy is one of the best tested concepts in science, and anyone who could demonstrate a way around it would be as famous a scientist as Sir Isaac Newton or Albert Einstein.

A simple way to test these machines is feedback. If the machine generates more energy than it uses, it should be able to power itself, with energy left to spare. If it can't do that, it's reasonable to assume the machine doesn't operate as its inventors claim. Unfortunately, it's very rarely that independent testers are allowed access to these machines to examine them in detail.

People who are mistaken are usually no great threat to society, although it may be difficult to convince them of the error they've made.

But people who are misleading are far more dangerous. There are cases around the world where people have collected money from investors for further research or for licence fees for machines which either aren't demonstrated, don't work as claimed, or just plain don't work. And while the inventors have pocketed a lot of money from their claims, the investors rarely see their investment money again.

Inventors may attempt to bolster their claims by saying that their device has been granted a patent. But patents aren't proof an invention works; instead, they prevent other people from profiting from the inventor's work.

Some have also claimed that there are conspiracies to suppress the development of free energy machines. But usually no evidence is provided to back up these claims. In any case, if a genuine free energy machine could be built, it would be far more profitable for a company to manufacture it and sell it than to smother the idea.

So next time you're invited to contribute towards the work of someone developing what appears to be a free energy machine, please check carefully. You may be contributing to one of the greatest breakthroughs in science, or you may simply be contributing to a charlatan's wallet.